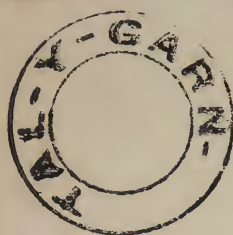




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Pseudodoxia Epidemica:
OR,
ENQUIRIES
INTO
Very many Received
T E N E N T S,
And commonly Presumed
TRUTHS.

By THOMAS BROWNE D^r of Physick.

Ex Libris Thomae Tourneur D. Grayes Junior. nunc Propriet. Holborn
The Second Edition,

Corrected and much Enlarged by the Author.

TOGETHER

With some Marginall Observations, and a Table
Alphabeticall at the end.

JUL. SCALIG.

*Ex Libris colligere quae prodiderunt Authores longe est periculosissimum;
Rerum ipsarum cognitio vera è rebus ipsis est.*

L O N D O N,

Printed by A. Miller, for Edw. Dod and Nath.
Ekins, at the Gunne in Ivie Lane. 1650.



TO THE
READER.



Would Truth dispense, we could be content, with Plato, that knowledge were but Remembrance; that Intellectuall acquisition were but Reminiscentiall evocation, and new impressions but the colourishing of old stamps which stood pale in the soul before. For, what is worse, knowledge is made by oblivion; and to purchase a clear and warrantable body of Truth, we must forget and part with much we know. Our tender Enquiries taking up Learning at large, and together with true and assured notions, receiving many, wherein our reviewing judgments doe finde no satisfaction; and therefore in this Encyclopædie and round of knowledge, like the great and exemplary wheeles of heaven, we must observe two Circles: that while we are daily carried about, and whirled on by the swinge and rapt of the one, we

To the Reader.

may maintain a naturall and proper course, in the slow and sober wheele of the other. And this we shall more readily perform, if we timely survey our knowledge; impartially singling out those encroachments, which junior compliance and popular credulity hath admitted. Whereof at present we have endeavoured a long and serious Advise; proposing not only a large and copious List, but from experience and reason attempting their decisions.

And first we crave exceeding pardon in the audacity of the Attempt; humbly acknowledging a work of such concernment unto Truth, and difficulty in it self, did well deserve the conjunction of many heads: And surely more advantageous had it been unto Truth, to have fallen into the endeavours of some cooperating advancers, that might have performed it to the life, and added authority thereto: which the privacie of our condition, and unequall abilities cannot expect. Whereby notwithstanding we have not been diverted, nor have our solitary attempts been so discouraged, as to despair the favourable look of Learning upon our single and unsupported endeavours.

Nor have we let fall our Penne, upon discouragement of contradiction, unbelief, and difficulty of dissuasion from radicated beliefs, and points of high prescription; although we are very sensible how hardly teaching years doe learn, what roots old age contracteth into errors, and how such as are but Acorns
in

To the Reader.

in our younger brows, grow Oaks in our elder heads, and become inflexible unto the powerfullest arm of reason. Although we have also beheld, what cold requitals others have found in their severall redemptions of Truth; and how their ingenious enquiries have been dismissed with censure, and obloquie of singularities.

Some consideration we hope from the course of our Profession; which though it leadeth us into many Truths that passe undiscerned by others, yet doth it disturb their communications, and much interrupt the office of our Pens in their well intended transmissions: and therefore surely in this work attempts will exceed performances: it being composed by snatches of time, as med icall vacations, and the fruitlesse importunity of Uroscopy would permit us. And therefore also perhaps it hath not found that regulur and constant stile, those infallible experiments, and those assured determinations, which the subject sometime requireth, and might be expected from others, whose quiet doors and unmolested hours afford no such distractions. Although who shall indifferently perpend the exceeding difficulty, which either the obscurity of the subject, or unavoidable paradoxologie must often put upon the Attemptor, will easily discern, a work of this nature is not to be performed upon one legge, and should smell of oyle if duly and deservedly handled.

Our first intentions considering the common inte-

To the Reader.

rest of Truth, resolved to propose it unto the Latine republike and equall judges of Europe; but owing in the first place this service unto our Countrey, and therein especially unto its ingenious Gentry, we have declared our self in a Language best conceived. Although I confesse, the quality of the Subject will sometimes carry us into expressions beyond meer English apprehensions; and indeed if elegancie still proceedeth, and English Pens maintain that stream we have of late observed to flow from many, we shall within few years be fain to learn Latine to understand English, and a work will prove of equall facility in either. Nor have we addressed our Penne or stile unto the people, (whom Books doe not redresse, and are this way incapable of reduction) but unto the knowing and leading part of Learning; as well understanding (at least probably hoping) except they be watered from higher regions, and fructifying meteors of knowledge, these weeds must lose their alimentall sappe and wither of themselves; whose conserving influence, could our endeavours prevent, we should trust the rest unto the sythe of Time, and hopefull dominion of Truth.

We hope it will not be unconsidered, that we finde no open tract, or constant manuduction in this Labyrinth; but are oft-times fain to wander in the America and untravelled parts of Truth: For though not many years past, Dr Primrose hath made a learned and full Discourse of vulgar Errors in Physick, yet
have

To the Reader.

have we discussed but two or three thereof. Scipio Mercurij hath also left an excellent Tract in Italian concerning popular Errors; but confining himself only unto those in Physick, he hath little conduced unto the generality of our Doctrine. Laurentius Foubertus, by the same Title led our expectation into thoughts of great relief; whereby notwithstanding we reaped no advantage; it answering scarce at all the promise of the inscription. Nor perhaps (if it were yet extant) should we finde any farther Assistance from that ancient piece of Andreas, pretending the same Title. And therefore we are often constrained to stand alone against the strength of opinion; and to meet the Goliath and Giant of Authority, with contemptible pibbles, and feeble arguments, drawn from the scrip and slender stock of our selves. Nor have we indeed scarce named any Author whose Name we doe not honour; and if detraction could invite us, discretion surely would contain us from any derogatory intention, where highest Pens and friendiest eloquence must fail in commendation.

And therefore also we cannot but hope the equitable considerations and candour of reasonable mindes. We cannot expect the frown of Theologie herein; nor can they which behold the present state of things, and controversie of points so long received in Divinity, condemn our sober enquiries in the doubtfull appertinancies of Arts, and Receptaries of

ὁ δὲ τῶν ἁγίων
καὶ ἐκκλησιαστικῶν
ἀθηνᾶν lib. 7.

To the Reader.

of Philosophy. Surely Philologers and Criticall Discourfers, who look beyond the shell and obvious exteriours of things, will not be angry with our narrower explorations. And we cannot doubt, our brothers in Physick (whose knowledge in Naturals will lead them into a nearer apprehension of many things delivered) will friendly accept, if not countenance our endeavours. Nor can we conceive, it may be unwelcome unto those honoured Worthies, who endeavour the advancement of Learning: as being likely to finde a clearer progression, when so many rubbes are levelled, and many untruths taken off, which passing as principles with common beliefs, disturb the tranquillity of Axiomes, which otherwise might be raised. And wise men cannot but know, that Arts and Learning want this expurgation: and if the course of truth be permitted unto its self, like that of Time and uncorrected computations, it cannot escape many errours, which duration still enlargeth.

Lastly, We are not Magisteriall in opinions, nor have we Dictator-like obtruded our conceptions; but in the humility of Enquiries or disquisitions, have only proposed them unto more ocular discerners. And therefore opinions are free, and open it is for any to think or declare the contrary. And we shall so farre encourage contradiction, as to promise no disturbance, or reoppose any Penne, that shall Fallaciously refute us; that shall only lay hold of our lapses, single out Digressions, Corollaries, or Ornamentall conceptions,

*The modesty of the Author
See. supra. 25 in fine
pagina. See his Introduction
to his first book.*

To the Reader.

conceptions, to evidence his own in as indifferent truths. And shall only take notice of such, whose experimentall and judicious knowledge shall solemnly look upon it; not only to destroy of ours, but to establish of his own, not to traduce or extenuate, but to explain and dilucidate, to adde and ampliate, according to the laudable custome of the Ancients in their sober promotions of Learning. Unto whom notwithstanding, we shall not contentiously rejoin, or only to justify our own, but to applaud or confirm his maturer assertions; and shall conferre what is in us unto his name and honour; Ready to be swallowed in any worthy enlarger: as having acquired our end, if any way, or under any name we may obtain a worke, so much desired, and yet desiderated of Truth.

See supra. 232.

THOMAS BROWNE.

B

AN

*An Advertisement concerning the Marginall
Annotations.*

R E A D E R:



E pleased to understand, that upon the second Edition of this excellent Piece (whereto the Authour intendeth no further Additions hereafter,) some strange hand hath attempted (yet sparingly, and but here and there,) to affix Annotations on the Margin, not imagining thereby to adde any Lustre to the Authours Text, but only to invite or fix the Readers eye upon some things (among as many other omitted) which he thought observable. They are distinguished from some other, which the Authour himself hath been pleased to adde, by a smaler Character, wherein they goe printed: and (that we doe the Authour no wrong, by imposing something upon him, which it were not fit he should own,) this also must be added concerning them, *viz.* That the Reader would never judge of the Authours Sense solely by the Note in the Margin, but (and that principally,) by reflexion, and consideration of the Text it self; wherein, according to the variety of the Matter handled, and the Authours acute and cautious manner of discourse, the attentive Reader will easily observe, in some things that he delivers himself Positively, or in the way of direct and resolute assertion; in others more Reservedly and with respect unto different Judgements; he will observe some things argued for and concluded, some only insinuated or hinted at, others barely related; All which, in the right interpretation of the Authour, ought to be distinguished, but could not well be distinguished, that is, represented with their peculiar and respective qualifications in the brevity of a Note.

There is also an Alphabeticall Table at the end added by the same hand, and capable (perhaps) in some passages of the like caution. This only is desired of the ingenuous Reader, both that himself may receive better satisfaction by what is done, and the Learned Authour lesse disservice. Farewell.

N. N.

Cal. Nov. 1649.

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March 14th 1645.

I Have perused these Learned Animadversions upon the Common Tenets and Opinions of men in former and in these present times, Entituled *Pseudodoxia Epidemica*; and finding them much transcending vulgar conceit, and adorned with great variety of matter, and multiplicity of reading; I approve them as very worthy to be Printed and Published.

JOHN DOWNAME.





THE FIRST BOOK:

O R,

GENERALL PART.

CHAP. I.

Of the Causes of Common Errors.



THE first and father cause of common Error, is the common infirmity of humane nature; of whose deceptible condition, although perhaps there should not need any other eviſtion, then the frequent errors we ſhall our ſelves commit, even in the expreſſe declaſement hereof: Yet ſhall we illuſtrate the ſame from more infallible conſtitutions, and perſons preſumed as farre from us in condition, as time, that is our firſt and ingenerated forefathers. From whom as we derive our being, and the ſeverall wounds of conſtitution; ſo may we in ſome manner excuſe our infirmities in the depravity of thoſe parts, whoſe traduſtions were pure in them, and their originals but once removed from God. Who notwithstanding (if poſterity may take leave to judge of the fact, as they are aſſured to ſuffer in the puniſhment) were groſſely deceived in their perfection; and ſo weakly deluded in the clarity of their underſtanding, that it hath left no ſmall obſcurity in ours, how error ſhould gain upon them.

For firſt, They were deceived by Satan; and that not in an inviſible inſinuation, but an open and diſcoverable apparition, that is, in the form of a Serpent; whereby although there were many occaſions of ſuſpition, and ſuch as could not eaſily eſcape a weaker circumspection, yet did the unwary apprehenſion of Eve take no advantage thereof. It hath therefore ſeemed ſtrange unto ſome, ſhe ſhould be deluded by a Serpent, or ſubject her reaſon to a beaſt, which God had ſubjected unto hers. It hath empuzzled the enquiries of others to apprehend, and enforced them unto ſtrange conceptions, to make out how without fear or doubt ſhe could diſcourſe with ſuch a creature, or hear a Serpent ſpeak, without ſuſpition of impoſture. The wits of others, have been ſo bold as to accuſe her ſimplicity in receiving his temptation ſo coldly; and when ſuch ſpecious effects of the fruit were promiſed, as to make them like gods, not to deſire, at leaſt not to wonder he purſued not that benefit himſelf. And had it been their own caſe would perhaps have replied, If the taſte of this fruit maketh the eaters like gods, why remaineſt thou a beaſt? If it maketh us but like gods, we are ſo already. If thereby our eyes ſhall be opened hereafter, they are at preſent quick enough to diſcover thy deceit, and we deſire them no opener to behold our own ſhame. If to know good and evil be our advantage, although we have free will unto both, we

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deſire

The Introduction

Matter of great
diſpute, how our
firſt parents could
be ſo deceived.

See this diſcuſſed on. 201.

desire to perform but one; we know 'tis good to obey the Commandment of God, but evil if we transgresse it.

They were deceived by one another, and in the greatest disadvantage of delusion, that is the stronger by the weaker: For Eve presented the fruit, and Adam received it from her. Thus the Serpent was cunning enough to begin the deceit in the weaker; and the weaker of strength, sufficient to consummate the fraud in the stronger. Art and fallacy was used unto her, a naked offer proved sufficient unto him: so his superstruction was his ruine, and the fertility of his sleep, an issue of death unto him. And although the condition of sex and posteriority of creation might somewhat extenuate the error of the woman: Yet was it very strange and inexcusable in the man; especially if as some affirm, he was the wisest of all men since; or if as others have conceived, he was not ignorant of the fall of the Angels, and had thereby example and punishment to deterre him.

They were deceived from themselves, and their own apprehensions; for Eve either mistook or traduced the Commandment of God. Of every tree of the garden thou maiest freely eat, but of the tree of knowledge of good and evil thou shalt not eat, for in the day thou eatest thereof, thou shalt surely die. Now Eve upon the question of the Serpent returned the precept in different terms, You shall not eat of it, neither shall you touch it lest perhaps you die. In which delivery, there were no lesse then two mistakes, or rather additionall mendacities; for the commandment forbid not the touch of the fruit, and positively said ye shall surely die; but she extenuating replied, *ne forte moriamini*, lest perhaps ye die. For so in the vulgar translation it runneth, and so is it expressed in the Thargum or Paraphrase of Jonathan. And therefore although it be said, and that very truly that the devil was a liar from the beginning, yet was the woman herein the first expresse beginner; and falsified twice before the reply of Satan. And therefore also to speak strictly, the sin of the fruit was not the first offence, they first transgressed the rule of their own reason, and after, the Commandment of God.

They were deceived through the conduct of their senses, and by temptations from the object it self; whereby although their intellectuals had not failed in the theory of truth, yet did the inservient and brutall faculties controle the suggestion of reason: Pleasure and profit already overswaying the instructions of honesty, and sensuality perturbing the reasonable commands of vertue. For so is it delivered in the text; That when the woman saw that the tree was good for food, and that it was pleasant unto the eye, and a tree to be desired to make one wise, she took of the fruit thereof and did eat. Now hereby it appeareth, that Eve before the fall, was by the same and beaten way of allurements inveigled, whereby her posterity hath been deluded ever since; that is those three delivered by St John, the lust of the flesh, the lust of the eye, and the pride of life; wherein indeed they seemed as weakly to fail as their debilitated posterity, ever after. Whereof notwithstanding some in their imperfections, have resisted more powerfull temptations; and in many moralities condemned the facility of their seductions.

Again, They might for ought we know, be still deceived in the unbelief of their mortality, even after they had eat of the fruit. For Eve observing no immediate execution of the curse, she delivered the fruit unto Adam; who after the taste thereof, perceiving himself still to live, might yet remain in doubt, whether he had incurred death; which perhaps he did not indubitably beleve, untill he was after convicted in the visible example of Abel. For he that would not beleve the menace of God at first, it may be doubted whether before an ocular example he beleved the curse at last. And therefore they are not without all reason, who have disputed the fact of Cain, that is although he purposed to mischief, whether he intended to murder his brother; or designed that, where-

of

Adam supposed
by some to have
been the wisest
man that ever
was.

Adam and Eve
how they fell.

Adam whence
(probably) indu-
ced to eat.

Whether Cain
intended to kill
Abel.

of he had not beheld an example in his own kinde; there might be somewhat in it that he would not have done, or desired undone, when he brake forth as desperately as before he had done uncivilly; My iniquity is greater then can be forgiven me.

Some nicities I confesse there are which extenuate, but many more that aggravate this delusion; which exceeding the bounds of our Discourse, and perhaps our satisfaction, we shall at present passe over. And therefore whether the sinne of our first parents were the greatest of any since, whether the transgression of Eve seducing, did not exceed that of Adam seduced, or whether the resistibility of his reason did not equivalence the facility of her seduction, we shall referre it unto the Schoolman. Whether there were not in Eve as great injustice in deceiving her husband, as imprudence in being deceived her self, especially if foretasting the fruit, her eyes were opened before this, and she knew the effect of it, before he tasted of it, we leave it unto the Morallist. Whether the whole relation be not Allegoricall, that is, whether the temptation of the man by the woman, be not the seduction of the rationall, and higher parts by the inferiour and feminine faculties: or whether the tree in the midst of the garden, were not that part in the centre of the body, on which was afterward the appointment of circumcision in males, we leave it unto the Thalmudist. Whether there were any policie in the devil to tempt them before conjunction, or whether the issue before temptation might in justice have suffered with those after, we leave it unto the Lawyer. Whether Adam foreknew the advent of Christ, or the reparation of his error by his Saviour; how the execution of the curse should have been ordered, if after Eve had eaten, Adam had yet refused. Whether if they had tasted the tree of life before that of good and evil, they had yet suffered the curse of mortality; or whether the efficacy of the one had not overpowred the penalty of the other, we leave it unto God. For he alone can truly determine these and all things else; who as he hath proposed the world unto our disputation, so hath he reserved many things unto his own resolution; whose determinations we cannot hope from flesh; but must with reverence suspend unto that great day, whose justice shall either condemn our curiosities, or resolve our disquisitions.

Lastly, Man was not only deceiveable in his integrity, but the Angels of light in all their clarity. He that said he would be like the highest did erre if in some way he conceived not himself so already; but in attempting so high an effect from himself, he mis-understood the nature of God, and held a false apprehension of his own; whereby vainly attempting not only insolencies, but impossibilities, he deceived himself as low as hell. In brief, there is nothing infallible but God, who cannot possibly erre. For things are really true as they correspond unto his conception; and have so much of verity, as they hold of conformity unto that intellect, in whose Idea they had their first determinations. And therefore being the rule, he cannot be irregular; nor being truth it self, conceiveably admit the impossible society of error.

The Talmudists
Allegories upon
the history of
Adam and Eve's
fall.

278.

CHAP. II.

A further illustration of the same.

BEING thus deluded before the fall, it is no wonder if their conceptions were deceitfull, and could scarce speak without an error after. For what is very remarkable (and no man I know hath yet observed) in the relation of Scripture before the flood, there is but one speech delivered by man, wherein there is not an erroneous conception; and strictly examined, most hainously injurious unto truth. The penne of Moses is brief in the account before the flood, and the speeches recorded are six.

The first is that of Adam, when upon the expostulation of God, he replied ; I heard thy voice in the garden, and because I was naked, I hid my self. In which reply, there was included a very grosse mistake, and if with pertinacity maintained, a high and capitall error. For thinking by this retirement to obscure himself from God, he infringed the omniscieny and essentiall ubiquity of his Maker; who as he created all things, so is he beyond and in them all, not only in power, as under his subjection, or in his presence, as being in his cognition, but in his very Essence, as being the soul of their causalities, and the essentiall cause of their existencies. Certainly his posterity at this distance and after so perpetuated an impairment, cannot but condemn the poverty of his conception, that thought to obscure himself from his Creator in the shade of the garden, who had beheld him before in the darknesse of his Chaos, and the great obscurity of nothing ; that thought to flie from God, which could not flie himself, or imagined that one tree should conceal his nakednesse from Gods eye, as another had revealed it unto his own. Those tormented spirits that wish the mountains to cover them, have fallen upon desires of lesse absurdity, and chosen waies of lesse improbable concealment. Though this be also as ridiculous unto reason, as fruitlesse unto their desires ; for he that laid the foundations of the earth, cannot be excluded the secrecy of the mountains, nor can there any thing escape the perspicacity of those eyes which were before light, and in whose opticks there is no opacity. This is the consolation of all good men, unto whom his ubiquity affordeth continuall comfort and security : And this is the affliction of hell, unto whom it affordeth despair, and remedilesse calamity. For those restless spirits that flie the face of the Almighty, being deprived the fruition of his eye, would also avoid the extent of his hand ; which being impossible, their sufferings are desperate, and their afflictions without evasion ; untill they can get out of Trismegistus his circle, that is, to extend their wings above the universe, and pitch beyond ubiquity.

The second is that speech of Adam unto God, The woman whom thou gavest me to be with me, she gave me of the Tree, and I did eat : this indeed was an unsatisfactory reply, and therein was involved a very impious error ; as implying God the Author of sinne, and accusing his Maker of his transgression. As if he had said, If thou hadst not given me a woman I had not been deceived : Thou promisedst to make her a help, but she hath proved destruction unto me ; had I remained alone, I had not sinned, but thou gavest me a consort, and so I became seduced. This was a bold and open accusation of God, making the fountain of good the contriver of evil, and the forbiddor of the crime an abetter of the fact prohibited. Surely, his mercy was great that did not revenge the impeachment of his Justice ; and his goodnesse to be admired, that it refused not his argument in the punishment of his excusation, or only pursued the first transgression without a penalty of this the second.

The third was that of Eve ; The Serpent beguiled me, and I did eate. In which reply there was not only a very feeble excuse, but an erroneous translating her own offence upon another. Extenuating her sinne from that which was an aggravation ; that is to excuse the fact at all, much more upon the suggestion of a beast, which was before in the strictest termes prohibited by her God. For although we now do hope the mercies of God will consider our degenerated integrities unto some minoration of our offences ; yet had not the sincerity of our first parents, so colourable expectations ; unto whom the commandment was but single, and their integrities best able to resist the motions of its transgression. And therefore so hainous conceptions have risen hereof, that some have seemed more angry therewith then God himself, being so exasperated with the offence, as to call in question their salvation, and to dispute the eternall punishment of their Maker. Assuredly with better reason may posterity accuse them, then they the Serpent, or one another ; and the displeasure of the Pelagians must needs be irreconcilable, who peremptorily

The sin of Adam
and Eve lesse ex-
cusable, and why.

rily maintaining they can fulfill the whole Law, will insatisfactorily condemn the non-observation of one.

The fourth was that speech of Cain upon the demand of God, Where is thy Brother? and he said, I know not. In which negation, beside the open impudence, there was implied a notable error; for returning a lie unto his Maker, and presuming in this manner, to put off the searcher of hearts, he denied the omniscience of God, whereunto there is nothing concealable. The answer of Satan in the case of Job, had more of truth, wisdom and reverence, then this; Whence comest thou Satan? and he said, from compassing of the earth. For though an enemy of God, and hater of all truth, his wisdom will hardly permit him to falsify with the Almighty. For well understanding the omniscience of his nature, he is not so ready to deceive himself, as to falsify unto him whose cognition is no way deludable. And therefore when in the temptation of Christ he played upon the fallacy, and thought to deceive the Author of truth, the method of this proceeding arose from the uncertainty of his divinity; whereof had he remained assured, he had continued silent; nor would his discretion attempt so unsucceedable a temptation. And so again at the last day, when our offences shall be drawn into account, the subtilty of that Inquisitor shall not present unto God a bundle of calumnies or confutable accusations; but will discreetly offer up unto his Omniscience, a true and undeniable list of our transgressions.

The devil knew
not our Saviour
to be God, when
he tempted him.

The fifth is another reply of Cain upon the denouncement of his curse, My iniquity is greater then can be forgiven: For so is it expressed in some translations. The assertion was not only desperate, but the conceit erroneous, overthrowing that glorious attribute of God, his mercy, and conceiving the sinne of murder unpardonable. Which how great foever, is not above the repentance of man, but far below the mercies of God, and was as some conceive expiated, in that punishment he suffered temporally for it. There are but two examples of this error in holy Scripture, and they both for murder, and both as it were of the same person; for Christ was mystically slain in Abel; and therefore Cain had some influence on his death as well as Judas; but the sinne had a different effect on Cain, from that it had on Judas, and most that since have fallen into it; for they like Judas desire death, and not unfrequently pursue it: Cain on the contrary grew afraid thereof, and obtained a securement from it. Assuredly if his despair continued, there was punishment enough in life, and justice sufficient in the mercy of his protection. For the life of the desperate equals the anxieties of death; who in incessant inquietudes but act the life of the damned, and anticipate the desolations of hell. 'Tis indeed a sinne in man, but a punishment only in the devils, who offend not God but afflict themselves, in the appointed despair of his mercies. And as to be without all hope is the affliction of the damned, so is it the happiness of the blessed; who having their expectations present, are not distracted with futurities. So is it also their felicity to have no faith; for enjoying the beatificall vision there is nothing unto them inevident; and in the fruition of the object of faith, they have received the full evacuation of it.

The last speech was that of Lamech, I have slain a man to my wound, and a young man to my hurt: If Cain be avenged seven fold, truly Lamech seventy and seven fold. Now herein there seems to be a very erroneous illation; from the indulgence of God unto Cain, concluding an immunity unto himself; that is, a regular protection from a single example, and an exemption from punishment in a fact that naturally deserved it. The Error of this offender was contrary to that of Cain, whom the Rabbins conceive that Lamech at this time killed. He despaired of Gods mercy in the same fact, where this presumed of it; he by a decollation of all hope annihilated his mercy, this by an immoderancy thereof destroyed his justice. Though the sinne were lesse, the error was as great; For as it is untrue that his mercy will not forgive offenders, or his benignity cooperate to their con-

Cain, as the Rab-
bins think, was the
man slain by La-
mech, Gen. 4. 23.

versions; So is it also of no lesse falsitie to affirm his Justice will not exact account of sinners, or punish such as continue in their transgressions.

Thus may we perceive, how weakly our fathers did erre before the flood, how continually and upon common discourse they fell upon errors after, it is therefore no wonder we have been erroneous ever since: And being now at greatest distance from the beginning of error, are almost lost in its dissemination, whose waies are boundlesse, and confesse no circumscription.

CHAP. III.

Of the second cause of Popular Errors; the erroneous disposition of the people. See his Religio Medici. p. 129.

HAVING thus declared the fallible nature of man even from his first production, we have beheld the generall cause of error. But as for popular errors, they are more neerly founded upon an erroneous inclination of the people; as being the most deceptible part of mankind, and ready with open arms to receive the encroachments of error. Which condition of theirs although deduceable from many grounds, yet shall we evidence it, but from a few, and such as most neerly and undeniably declare their natures.

What Error is.

How unequall discerners of truth they are, and openly exposed unto error, will first appear from their unqualified intellectuals, unable to umpire the difficulty of its dissentions. For error to speak strictly, is a firm assent unto falsity. Now whether the object whereunto they deliver up their assent be true or false, they are incompetent judges.

For the assured truth of things is derived from the principles of knowledge, and causes, which determine their verities. Whereof their uncultivated understandings, scarce holding any theory, they are but bad discerners of verity; and in the numerous track of error, but casually do hit the point and unity of truth.

Their understanding is so feeble in the discernment of falsities, and averting the errors of reason, that it submitteth unto the fallacies of sense, and is unable to rectifie the error of its sensations. Thus the greater part of mankind having but one eye of sense and reason, conceive the earth farre bigger then the Sun, the fixed Stars lesser then the Moon, their figures plain, and their spaces equidistant. For thus their sense informeth them, and herein their reason cannot rectifie them; and therefore hopelessly continuing in their mistakes, they live and die in their absurdities, passing their daies in perverted apprehensions, and conceptions of the world, derogatory unto God, and the wisdom of the creation.

Arguments of
sensitive quality
most prevailing
upon vulgar ca-
pacities.

Again, Being so illiterate in point of intellect, and their sense so incorrected, they are farther indisposed ever to attain unto truth, as commonly proceeding in those waies, which have most reference unto sense, and wherein there lieth most notable and popular delusion.

Fable.

For being unable to wield the intellectuall arms of reason, they are fain to betake themselves unto wasters and the blunter weapons of truth; affecting the grosse and sensible waies of doctrine, and such as will not consist with strict and subtile reason. Thus unto them a piece of Rhetorick is a sufficient argument of Logick, an Apologue of Æsop, beyond a Syllogisme in Barbara; parables then propositions, and proverbs more powerfull then demonstrations. And therefore are they led rather by example, then precept; receiving perswasions from visible inducements, before intellectuall instructions. And therefore also they judge of humane actions by the event; for being incapable of operable circumstances, or rightly to judge the prudentiality of affairs, they only gaze upon the visible successe, and thereafter condemn or cry up the whole progression.

And

And so from this ground in the Lecture of holy Scripture, their apprehensions, are commonly confined unto the literall sense of the text; from whence have ensued the grosse and duller sort of heresies. For not attaining the deuteroscopy, and second intention of the words, they are faine to omit their superconsequencies, coherencies, figures, or tropologies, and are not sometime perswaded by fire beyond their literalities. And therefore also things invisible, but unto intellectuall discernments, to humour the grossnesse of their comprehensions, have been degraded from their proper forms, and God himself dishonoured into manuell expressions. And so likewise being unprovided, or unsufficient for higher speculations, they will alwaies betake themselves, unto sensible representations, and can hardly be restrained the dulnesse of Idolatry. A sinne or folly not only derogatory unto God, but men; overthrowing their reason, as well as his divinity. In brief, a reciprocation, or rather an Inversion of the creation; making God one way, as he made us another; that is, after our Image, as he made us after his.

See for this. 227.

Moreover, their understanding thus weak in it self, and perverted by sensible delusions, is yet farther impaired by the dominion of their appetite; that is, the irrationall and brutall part of the soul, which lording it over the sovereign faculty, interrupts the actions of that noble part, and choaks those tender sparks, which Adam hath left them of reason. And therefore they do not only swarm with errors, but vices depending thereon. Thus they commonly affect no man any farther then he deserts his reason, or complies with their aberrancies. Hence they embrace not vertue for it self, but its reward; and the argument from pleasure or utility is farre more powerfull, then that from vertuous honesty; which Mahomet and his contrivers well understood, when he set out the felicity of his heaven, by the contentments of flesh, and the delights of sense: slightly passing over the accomplishment of the soul, and the beatitude of that part which earth and visibilities too weakly affect. But the wisdom of our Saviour, and the simplicity of his truth proceeded another way; defying the popular provisions of happinesse from sensible expectations; placing his felicity in things removed from sense, and the intellectuall enjoyment of God. And therefore the doctrine of the one was never afraid of Universities, or endeavoured the banishment of learning like the other. And though Galen doth sometime nibble at Moses, and beside the Apostate Christian, some Heathens have questioned his Philosophicall part or treaty of the Creation: Yet is there surely no reasonable Pagan, that will not admire the rationall and well grounded precepts of Christ; whose life as it was conformable unto his doctrine, so was that unto the highest rules of reason; and must therefore flourish in the advancement of learning, and the perfection of parts best able to comprehend it.

See 8 author nibbling at him
(Tullian) also. 184. 26
See his Religiō to Mahomet
pag. 57.

Again, Their individuall imperfections being great, they are moreover enlarged by their aggregation; and being erroneous in their single numbers once hudled together, they will be error it self. For being a confusion of knaves and fools, and a farraginous concurrence of all conditions, tempers, sex, and ages; it is but naturall if their determinations be monstrous, and many waies inconsistent with truth. And therefore wise men have alwaies applauded their own judgement, in the contradiction of that of the people; and their sobrest adversaries, have ever afforded them the stile of fools and mad men; and to speak impartially, their actions have often made good these Epithites. Had Orestes been Judge, he would not have acquitted that Lystrian rabble of madnesse, who upon a visible miracle, falling into so high a conceit of Paul and Barnabas, that they termed the one Jupiter, the other Mercurius; that they brought oxen and garlands, and were hardly restrained, from sacrificing unto them; did notwithstanding suddenly, after fall upon Paul, and having stoned him, drew him

Non sani esse
hominis non sa-
nus jurat Ore-
stes.

for

for dead out of the city. It might have hazarded the sides of Democritus, had he been present at that tumult of Demetrius; when the people flocking together in great numbers, some cried one thing, and some another, and the assembly was confus'd, and the most part knew not wherefore they were come together; notwithstanding, all with one voice for the space of two hours cried out, Great is Diana of the Ephesians. It had overcome the patience of Job, as it did the meekness of Moses, and would surely have mastered any, but the longanimity and lasting sufferance of God. Had they beheld the mutiny in the wilderness; when after ten great miracles in Egypt, and some in the same place, they melted down their stolen ear-rings into a calf, and monstrously cried out, These are thy gods O Israel, that brought thee out of the land of Egypt. It much accuseth the impatience of Peter, who could not endure the staves of the multitude, and is the greatest example of lenity in our Saviour, when he desired of God forgiveness unto those, who having one day brought him into the City in triumph, did presently after, act all dishonour upon him, and nothing could be heard but *Crucifige* in their courts. Certainly he that considereth these things in Gods peculiar people, will easily discern how little of truth, there is in the waies of the multitude; and though sometimes they are flattered with that Aphorisme, will hardly beleieve the voice of the people to be the voice of God.

Lastly, Being thus divided from truth in themselves, they are yet farther removed by advenient deception. For true it is (and I hope shall not offend their vulgarities,) if I say they are daily mocked into error by subtler devisors, and have been expressly deluded, by all professions and ages. Thus the Priests of Elder time, have put upon them many incredible conceits, not only deluding their apprehensions, with Ariolation, South-saying, and such oblique Idolatries; but winning their credulities unto the literall and down-right adoration of Cats, Lizards and Beetles. And thus also in some Christian Churches, wherein is presumed an irreprovable truth, if all be true that is suspected, or half what is related, there have not wanted, many strange deceptions, and some thereof are still confessed by the name of Pious fraudes. Thus Theudas an Impostor was able to lead away four thousand into the wilderness, and the delusions of Mahomet almost the fourth part of mankind. Thus all heresies how grosse soever, have found a welcome with the people. For thus, many of the Jews were wrought into belief, that Herod was the Messias; and David George of Leyden and Arden, were not without a party amongst the people, who maintained the same opinion of themselves almost in our daies.

Physitians (many at least that make profession thereof) beside divers lesse discoverable waies of fraud, have made them beleieve, there is the book of fate, or the power of Aarons brest-plate in Urines. And therefore hereunto they have recourse as unto the Oracle of life, the great determinator of virginity, conception, fertility, and the inscrutable infirmities of the whole body. For as though there were a feminality in Urine, or that like the seed it carried with it the Idea of every part, they foolishly conceive we visibly behold therein the Anatomy of every particle, and can thereby indigitate their affections; and running into any demands expect from us a sudden resolution in things wherein the devil of Delphos would demurre, and we know hath taken respite of some daies to answer easier questions.

Saltimbancoes, Quack-salvers and Charlatans, deceive them in lower degrees. Were Æsop alive, the Piazza and Pont Neuf could not but speak their fallacies; mean while there are too many, whose cries cannot conceale their mischiefs. For their Impostures are full of cruelty, and worse then any other; deluding not only unto pecuniary defraudations, but the irreparable deceit of death.

Astrologers; which pretend to be of Cabala with the starres (such I mean as

abuse

The Authors cen-
sure upon judge-
ments by Urine,

293.

Places in Ve-
nice and Paris,
where Mount-
ebanks play
their pranks.

abuse that worthy enquiry;) have not been wanting in their deceptions. Who having wonne their belief unto principles whereof they make great doubt themselves, have made them beleieve that arbitrary events below, have necessary causes above; whereupon their credulities assent unto any prognosticks, and daily swallow the predictions of men, which considering the independencie of their causes, and contingencie in their events, are only in the prescience of God.

Fortune tellers, Juglers, Geomancers, and the like incantatory impostors, though commonly men of inferiour rank, and from whom without illumination they can expect no more then from themselves; do daily and professedly delude them. Unto whom (what is deplorable in men and Christians) too many applying themselves; betwixt jest and earnest, betray the cause of truth, and insensibly make up the legionary body of error.

Statistes and Politicians, unto whom *Ragione di Stato*, is the first considerable, as though it were their businesse to deceive the people, as a Maxime, do hold, that truth is to be concealed from them; unto whom although they reveale the visible design, yet do they commonly conceale the capitall intention. And therefore have they alway been the instruments of great designs, yet seldome understood the true intention of any; accomplishing the drifts of wiser heads, as inanimate and ignorant Agents the generall designe of the world; who though in some latitude of sense, and in a naturall cognition perform their proper actions; yet do they unknowingly concurre unto higher ends, and blindly advance the great intention of nature. Now how farre they may be kept in ignorance, a great example there is in the people of Rome, who never knew the true and proper name of their own City. For beside that common appellation received by the Citizens, it had a proper and secret name concealed from them: *Cujus alterum nomen dicere secretis Ceremoniarum nefas habetur*, saith Plinie; lest the name thereof being discovered unto their enemies, their Penates and Patronall gods, might be called forth by charms and incantations. For according unto the tradition of Magitians, the tutelary spirits will not remove at common appellations, but at the proper names of things whereunto they are protectors.

Thus having been deceived by themselves, and continually deluded by others, they must needs be stuffed with errors, and even over-runne with these inferiour falsities; whereunto whosoever shall resigne their reasons, either from the root of deceit in themselves, or inability to resist such triviall ingannations from others; although their condition and fortunes may place them many Spheres above the multitude, yet are they still within the line of vulgarity, and Democraticall enemies of truth.

The people of Rome, why never suffer'd to know the right name of their city.

Deceptions.

CHAP. IIII.

Of the nearer and more Immediate Causes of popular errours, both in the wiser and common sort, Misapprehension, Fallacy, or false diduction, Credulity, Supinity, adherence unto Antiquitie, Tradition and Authority.

THE first is a mistake, or a conception of things, either in their first apprehensions, or secondary relations. So Eve mistook the Commandment, either from the immediate injunction of God, or from the secondary narration of her husband. So might the Disciples mistake our Saviour, in his answer unto Peter, concerning the death of John, as is delivered, John 21. Peter seeing John, saith unto Jesus, Lord, and what shall this man doe? Jesus saith, If I will, that he tarry till I come, what is that unto thee? Then went this saying abroad among

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the

See a large Enquiry into this. 303.

The belief of Centaures whence occasioned,

p. 17.

Æquivocation and Amphibologie how they differ.

Pythagoras his Allegoricall precepts moralized.

And 224. x. 142.

the brethren, that that Disciple should not die. Thus began the conceit and opinion of the Centaures, that is, in the mistake of the first beholders, as is declared by Servius; when some young Theſſalians on horseback were beheld afarre off, while their horses watered, that is, while their heads were depressed, they were conceived by the first spectators, to be but one animal; and answerable hereunto have their pictures been drawn ever since.

And as simple mistakes commonly beget fallacies, so men rest not in false apprehensions, without absurd and inconsequent diductions; from fallacious foundations, and misapprehended mediums, erecting conclusions no way inferrible from their premises. Now the fallacies whereby men deceive others, and are deceived themselves, the Ancients, have divided into Verball and Reall. Of the Verball, and such as conclude from mistakes of the word, although there be no lesse then six, yet are there but two thereof worthy our notation; and unto which the rest may be referred: that is the fallacie of Æquivocation and Amphibologie; which conclude from the ambiguity of some one word, or the ambiguous syntaxis of many put together. From this fallacy arose that calamitous error of the Jews, misapprehending the Prophecies of their Messias, and expounding them alwaies unto literall and temporall expectations. By this way many errors crept in and perverted the doctrine of Pythagoras, whilest men received his precepts in a different sense from his intention; converting Metaphors into proprieties, and receiving as litterall expressions, obscure and involved truths. Thus when he enjoined his Disciples, an abstinence from beans, many conceived they were with severity debarred the use of that pulse; which notwithstanding could not be his meaning; for as Aristoxenus who wrote his life, averreth, he delighted much in that kinde of food himself. But herein as Plutarch observeth, he had no other intention, then to dissuade men from Magistracy, or undertaking the publicke offices of state; for by beans were the Magistrates elected in some parts of Greece; and after his daies, we reade in Thucydides, of the Councell of the bean in Athens. The same word also in Greek doth signifie a testicle, and hath been thought by some an injunction only of continencie, as Aul. Gellius hath expounded, and as Empedocles may also be interpreted, *πάν δειλοί καρμῶν ἀπὸ χειρὸς*, that is, *Testiculis miseri dextras subducite*. Again his injunction is, not to harbour Swallows in our houses: Whose advice notwithstanding we doe not contemn, who daily admit and cherish them. For herein a caution is only implied not to entertain ungratefull and thanklesse persons, which like the swallow are no way commodious unto us; but having made use of our habitations, and served their own turns, forsake us. So he commands to deface the print of a cauldron in the ashes, after it hath boyled. Which strictly to observe were condemnable superstition: For hereby he covertly adviseth us not to persevere in anger, but after our choler hath boyled, to retain no impression thereof. In the like sense are to be received, or they will else be misapprehended, when he adviseth his Disciples to give the right hand but to few, to put no viands in a chamberpot, not to passe over a balance, not to rake up fire with a sword, or pisse against the Sunne. Which enigmaticall deliveries comprehend usefull verities, but being mistaken by literall Expositors at the first, they have been misunderstood by most since, and may be occasion of error to verball capacities for ever.

This fallacy in the first delusion Satan put upon Eve, and his whole tentation might be the same Elench continued; so when he said, Ye shall not die, that was in his equivocation, ye shall not incurre a present death, or a destruction immediately ensuing your transgression. Your eyes shall be opened; that is, not to the enlargement of your knowledge, but discovery of your shame and proper confusion. You shall know good and evil; that is, you shall have knowledge of good by its privation, but cognifance of evil by sense and visible experience. And the same fallacy or way of deceit so well succeeding in Paradise, he continued in his

Oracles

Oracles through all the world. Which had not men more warily understood, they might have performed many acts inconsistent with his intention. Brutus might have made haste with Tarquine to have kissed his own mother. The Athenians might have built them wooden walls, or doubled the Altar at Delphos.

The circle of this fallacy is very large, and herein may be comprised all Ironicall mistakes; for intended expressions receiving inverted significations; all deductions from metaphors, parables, allegories, unto reall and rigid interpretations. Whereby have risen not only popular errors in Philosophy, but vulgar and senselesse heresies in Divinity; as will be evident unto any that shall examine their foundations, as they stand related by Epiphanius, Austin, or Prateolus.

Other waies there are of deceit, which consist not in false apprehension of words, that is, verball expressions or sententiall significations, but fraudulent deductions, or inconsequent illations, from a false conception of things. Of these extradictionary and reall fallacies, Aristotle and Logicians make in number six, but we observe that men are most commonly deceived by four thereof: those are, *Petitio principij*. *A dicto secundum quid ad dictum simpliciter*. *A non causâ pro causâ*. And *fallacia consequentis*.

The first is *petitio principij*. Which fallacie is committed, when a question is made a medium, or we assume a medium as granted, whereof we remain as unsatisfied as of the question. Briefly, where that is assumed as a principle, to prove another thing, which is not conceded as true it self. By this fallacie was Eve deceived, when she took for granted, the false assertion of the devil; Ye shall not surely die; for God doth know that in the day she shall eat thereof, your eyes shall be opened, and you shall be as gods. Which was but a bare affirmation of Satan without any proof or probable inducement; contrary unto the command of God and former belief of her self. And this was the Logick of the Jews, when they accused our Saviour unto Pilate; who demanding a reasonable impeachment, or the allegation of some crime worthy of condemnation; they only replied, if he had not been worthy of death, we would not have brought him before thee. Wherein there was neither accusation of the person, nor satisfaction of the Judge, who well understood a bare accusation was no presumption of guilt, and the clamors of the people no accusation at all. The same fallacie is sometime used in the dispute, between Job, and his friends; they often taking that for granted which afterward he disproveth.

The second is *à dicto secundum quid ad dictum simpliciter*, when from that which is but true in a qualified sense, an inconditionall and absolute verity is inferred; transferring the speciall consideration of things unto their generall acceptions, or concluding from their strict acception, unto that without all limitation. This fallacie men commit when they argue from a particular to a generall; as when we conclude the vices or qualities of a few upon a whole Nation. Or from a part unto the whole. Thus the devil argued with our Saviour, and by this he would perswade him he might be secure if he cast himself from the pinnacle: for said he, it is written, he shall give his Angels charge concerning thee, and in their hands they shall bear thee up, lest at any time thou dash thy foot against a stone. But this illation was fallacious, leaving out part of the text, Psalm 91. He shall keep thee in all thy waies; that is, in the waies of righteousness, and not of rash attempts: so he urged a part for the whole, and inferred more in the conclusion, then was contained in the premises. By the same fallacie we proceed, when we conclude from the signe unto the thing signified. By this incroachment Idolatry first crept in, men converting the symbolicall use of Idols into their proper worship, and receiving the representation of things as the substance and thing it self. So the statue of Belus at first erected in his memory, was in after times adored as a Divinity. And so also in the

bid. 89. + 89

The Original of
Idolatry.

Sacrament of the Eucharist, the bread and wine which were but the signalls or visible signes, were made the things signified, and worshipped as the body of Christ. And hereby generally men are deceived that take things spoken in some latitude without any at all. Hereby the Jews were deceived concerning the commandment of the Sabbath, accusing our Saviour for healing the sick, and his disciples for plucking the ears of corn, upon that day. And by this deplorable mistake they were deceived unto destruction, upon the assault of Pompey the great made upon that day, by whose superstitious observation they could not defend themselves, or perform any labour whatsoever.

The Alcoran endures neither wine nor Universities.

The third is a *non causa pro causa*, when that is pretended for a cause which is not, or not in that sense which is inferred. Upon this consequence the law of Mahomet forbid the use of wine, and his successors abolished Universities: by this also many Christians have condemned literature, misunderstanding the counsel of Saint Paul, who adviseth no further then to beware of Philosophy. On this foundation were built the conclusions of Southsayers in their Auguriall, and Tri-pudiary divinations; collecting presages from voice or food of birds, and conjoyning events unto causes of no connexion. Hereupon also are grounded the grosse mistakes, in the cure of many diseases; not only from the last medicine, and sympatheticall receipts, but amulets, charms, and all incantatory applications; deriving effects not only from inconcurring causes, but things devoid of all efficiencie whatever.

The fourth is the fallacie of the consequent; which if strictly taken, may be a fallacious illation in reference unto antecedencie, or consequencie; as to conclude from the position of the antecedent, unto the position of the consequent, or from the remotion of the consequent to the remotion of the antecedent. This is usually committed, when in connexed propositions the termes adhere contingently. This is frequent in Oratorie illations; and thus the Pharisees, because he conversed with Publicans and sinners, accused the holinesse of Christ. But if this fallacie be largely taken, it is committed in any vicious illation, offending the rules of good consequence; and so it may be very large, and comprehend all false illations against the settled laws of Logick. But the most usuall inconsequencies are from particulars, from negatives, and from affirmative conclusions in the second figure, wherein indeed offences are most frequent, and their discoveries not difficult.

CHAP. V.

Of Credulity and Supinity.

A Third cause of common Errors is the Credulity of men; that is, an easie assent, to what is obtruded, or a beleeving at first ear what is delivered by others. This is a weaknesse in the understanding, without examination assenting unto things, which from their natures and causes doe carry no perswasion; whereby men often swallow falsities for truths, dubiosities for certainties, feasibilities for possibilities, and things impossible as possibilities themselves. Which, though a weaknesse of the Intellect, and most discoverable in vulgar heads, yet hath it sometime fallen upon wiser brains, and great advancers of truth. Thus many wise Athenians so far forgot their Philosophy, and the nature of humane production, that they descended unto beliefs, the originall of their Nation was from the Earth, and had no other beginning then from the feminality and womb of their great Mother. Thus is it not without wonder, how those learned Arabicks so tamely delivered up their belief unto the absurdities of the Alcoran. How the noble Geber, Avicenna and Almanzor, should rest satisfied in

in the nature and causes of earthquakes, delivered from the doctrine of their Prophet; that is, from the motion of a great Bull, upon whose horns all the earth is poised. How their faiths could decline so low, as to concede their generations in heaven, to be made by the smell of a citron, or that the felicity of their Paradise should consist in a Jubile of copulation, that is a coition of one act prolonged unto fifty years. Thus is it almost beyond wonder, how the belief of reasonable creatures, should ever submit unto Idolatry: and the credulity of those men scarce credible (without presumption of a second fall) who could beleeve a Deity in the work of their own hands. For although in that ancient and diffused adoration of Idols, unto the Priests and subtiler heads, the worship perhaps might be symbolical, and as those Images some way related unto their deities; yet was the Idolatry direct and down-right in the people; whose credulity is illimitable; who may be made beleeve that any thing is God; and may be made beleeve there is no God at all.

And as Credulity is the cause of Error, so incredulity oftentimes of not enjoying truth; and that not only an obstinate incredulity, whereby we will not acknowledge assent unto what is reasonably inferred, but any Academicall reservation in matters of easie truth, or rather scepticall infidelity against the evidence of reason and sense. For these are conceptions befalling wise men, as absurd as the apprehensions of fools, and the credulity of the people which promiscuously swallow any thing. For this is not only derogatory unto the wisdom of God, who hath proposed the world unto our knowledge, and thereby the notion of himself, but also detractory unto the intellect, and sense of man expressly disposed for that inquisition. And therefore *hoc tantum scio quod nihil scio*, is not to be received in an absolute sense, but is comparatively expressed unto the number of things whereof our knowledge is ignorant; nor will it acquit the insatisfaction of those which quarrell with all things, or dispute of matters concerning whose verities we have conviction from reason, or decision from the inerrable and requisite conditions of sense. And therefore if any affirm the earth doth move, and will not beleeve with us, it standeth still; because he hath probable reasons for it, and I no infallible sense nor reason against it, I will not quarrell with his assertion. But if like Zeno he shall walk about, and yet deny there is any motion in nature, surely that man was constituted for Anticera, and were a fit companion for those, who having a conceit they are dead, cannot be convicted into the society of the living.

The fourth is a supinity or neglect of enquiry, even in matters whereof we doubt; rather beleeving, then going to see, or doubting with ease and gratis, then beleeving with difficulty or purchase; whereby, either from a temperamental inactivity we are unready to put in execution the suggestions or dictates of reason; or by a content and acquiescence in every species of truth, we embrace the shadow thereof, or so much as may palliate its just and substantiall acquirements. Had our forefathers sat down in these resolutions, or had their curiosities been sedentary, who pursued the knowledge of things through all the corners of nature, the face of truth had been obscure unto us, whose lustre in some part their industries have revealed.

Certainly the sweat of their labours was not salt unto them, and they took delight in the dust of their endeavours. For questionlesse in knowledge there is no slender difficulty, and truth which wise men say doth lye in a well, is not recoverable but by exantlation. It were some extenuation of the curse, if *in sudore vultus tui*, were confinable unto corporall exercitations, and there still remained a Paradise or unthorny place of knowledge. But now our understandings being eclipsed, as well as our tempers infirmed, we must betake our selves to waies of reparation, and depend upon the illumination of our endeavours. For thus we may in some measure repair our primary ruines, and build our selves men again. And

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35.

Obstinate and irrational Scepticisme justly censured.

248. 59.

though the attempts of some have been precipitous, and their enquiries so audacious as to come within command of the flaming swords, and lost themselves in attempts above humanity; yet have the enquiries of most defected by the way, and tyred within the sober circumference of knowledge.

And this is the reason why some have transcribed any thing; and although they cannot but doubt thereof, yet neither make experiment by sense or enquiry by reason, but live in doubts of things whose satisfaction is in their own power; which is indeed the inexcusable part of our ignorance, and may perhaps fill up the charge of the last day. For not obeying the dictates of reason, and neglecting the cries of truth, we fail not only in the trust of our undertakings, but in the intention of man it self. Which although more veniall unto ordinary constitutions, and such as are not framed beyond the capacity of beaten notions, yet will it inexcusably condemn some men, who having received excellent endowments, have yet sat down by the way, and frustrated the intention of their habilities. For certainly as some men have sinned, in the principles of humanity, and must answer, for not being men, so others offend if they be not more; *Magis extra vitia quam cum virtutibus*, would commend those, These are not excusable without an Excellency. For great constitutions, and such as are constellated unto knowledge, do nothing till they outdoe all; they come short of themselves if they go not beyond others, and must not sit down under the degree of worthies. God expects no lustre from the minor stars, but if the Sun should not illuminate all, it were a sin in Nature. *Ultimus bonorum*, will not excuse every man, nor is it sufficient for all to hold the common levell; Mens names should not only distinguish them: A man should be something that men are not, and individuall in somewhat beside his proper nature. Thus while it exceeds not the bounds of reason and modesty, we cannot condemn singularity. *Nos numerus sumus*, is the motto of the multitude, and for that reason are they fools. For things as they recede from unity, the more they approach to imperfection, and deformity; for they hold their perfection in their simplicities, and as they nearest approach unto God.

Univerſities, why many times full of Scholars and empty of Learning.

The naturall genius or inclination how much to be regarded in the choise of a profession.

Now as there are many great wits to be condemned, who have neglected the increment of Arts, and the sedulous pursuit of knowledge; so are there not a few very much to be pittied, whose industry being not attended with naturall parts, they have sweat to little purpose, and rolled the stone in vain. Which chiefly proceedeth from naturall incapacity, and geniall indisposition, at least to those particulars whereunto they apply their endeavours. And this is one reason why though Universities be full of men, they are oftentimes empty of learning. Why as there are some which do much without learning, so others but little with it, and few that attain to any measure of it. For many heads that undertake it, were never squared nor timbred for it. There are not only particular men, but whole nations indisposed for learning; whereunto is required not only education, but a pregnant Minerva and teeming constitution. For the wildome of God hath divided the Genius of men according to the different affairs of the world, and varied their inclinations according to the variety of Actions to be performed therein. Which they who consider not, rudely rushing upon professions and waies of life unequall to their natures; dishonour not only themselves and their functions, but pervert the harmony of the whole world. For if the world went on as God hath ordained it, and were every one implied in points concordant to their Natures; Professions, Arts and Common-wealths would rise up of themselves; nor needed we a Lanthorn to finde a man in Athens.

CHAP. VI.

Of adherence unto Antiquity.

BUT the mortallest enemy unto knowledge, and that which hath done the greatest execution upon truth, hath been a peremptory adhesion unto Authority, and more especially the establishing of our belief upon the dictates of Antiquity. For (as every capacity may observe) most men of Ages present, so superstitiously do look on Ages past, that the authorities of the one, exceed the reasons of the other. Whose persons indeed being farre removed from our times, their works, which seldome with us passe uncontrouled, either by contemporaries or immediate successors, are now become out of the distance of en- vies: And the farther removed from present times, are conceived to approach the nearer unto truth it self. Now hereby methinks we manifestly delude our selves, and widely walk out of the track of truth.

For first, men hereby impose a thralldome on their times, which the ingenuity of no age should endure, or indeed the presumption of any did ever yet enjoin. Thus Hippocrates about 2000. year agoe, conceived it no injustice, either to examine or refute the doctrines of his predecessors: Galen the like, and Aristotle most of any. Yet did not any of these conceive themselves infallible, or set down their dictates as verities irrefragable; but when they either deliver their own inventions, or reject other mens opinions, they proceed with Judgement and Ingenuity, establishing their assertion, not only with great solidity, but submitting them also unto the correction of future discovery.

Secondly, Men that adore times past, consider not that those times were once present, that is, as our own are at this instant, and we our selves unto those to come, as they unto us at present; as we relye on them, even so will those on us, and magnifie us hereafter, who at present condemn our selves. Which very absurdity is daily committed amongst us even in the esteem and censure of our own times. And to speak impartially, old men from whom we should expect the greatest example of wisdom, do most exceed in this point of folly; commending the daies of their youth, they scarce remember, at least well understood not; extolling those times their younger years have heard their fathers condemn, and condemning those times the gray heads of their posterity shall commend. And thus is it the humour of many heads to extoll the daies of their fore-fathers, and declaim against the wickednesse of times present. Which notwithstanding they cannot handsomely doe, without the borrowed help and satyres of times past; condemning the vices of their times, by the expressions of vices in times which they commend, which cannot but argue the community of vice in both. Horace therefore, Juvenall and Perseus were no prophets, although their lines did seem to indigitate and point at our times. There is a certain list of vices committed in all ages, and declaimed against by all Authors, which will last as long as humane nature; or digested into common places may serve for any theme, and never be out of date untill Dooms day.

Thirdly, The testimonies of Antiquity and such as passe oraculously amongst us, were not if we consider them alwaies so exact, as to examine the doctrine they delivered. For some, and those the acuteſt of them, have left unto us many things of falsity, controulable, not only by criticall and collective reason, but common and countrey observation. Hereof there want not many examples in Aristotle, through all his book of animals; we shall instance only in three of his Problemes, and all contained under one Section. The first enquireth why a Mandoth cough, but not an Oxe or Cow? whereas notwithstanding the contrary is often observed by husbandmen, and stands confirmed by those who have

Immoderate respect to Antiquity a generall cause of Error.

have expressly treated *de re Rustica*, and have also delivered divers remedies for it. Why Juments, as Horses, Oxen and Asses, have no eructation or belching, whereas indeed the contrary is often observed, and also delivered by Columella. And thirdly, why man alone hath gray haire? whereas it cannot escape the eyes, and ordinary observation of all men, that horses, dogs, and foxes, wax gray with age in our Countries, and in the colder regions many other animals without it. And though favourable constructions may somewhat extenuate the rigour of these concessions, yet will scarce any palliate that in the fourth of his meteors, That salt is easiest dissolvable in cold water: Nor that of Dioscorides, That Quicksilver is best preserved in Tinne and Lead.

Other Authors write often dubiously, even in matters wherein is expected a strict and definitive truth; extenuating their affirmations, with *aiunt, ferunt, fortasse*. As Dioscorides, Galen, Aristotle, and many more. Others by hear say; taking upon trust most they have delivered; whose volumes are meer collections, drawn from the mouthes or leaves of other Authors; as may be observed in Plinie, Ælian, Athenæus, and many more. Not a few transcripively; subscribing their names unto other mens endeavours, and meerly transcribing almost all they have written. The Latines transcribing the Greeks, the Greeks and Latines each other. Thus hath Justine borrowed all from Trogus Pompeius, and Julius Solinus in a manner transcribed Plinie. Thus have Lucian and Apuleius served Lucius Pratenfis; men both living in the same time, and both transcribing the same Authour, in those famous Books, Entituled Lucius by the one, and Aureus Asinus by the other. In the same measure hath Simocrates in his Tract *de Nilo*, dealt with Diodorus Siculus, as may be observed, in that work annexed unto Herodotus, and translated by Jungermannus. Thus Eratosthenes wholly translated Timotheus *de Insulis*, not reserving the very Preface. The very same doth Strabo report of Eudorus and Ariston in a Treatise Entituled *de Nilo*. Clemens Alexandrinus hath observed many examples hereof among the Greeks; and Plinie speaketh very plainly in his Preface, that conferring his Authors, and comparing their works together, he generally found those that went before *verbatim* transcribed, by those that followed after, and their originals never so much as mentioned. To omit how much the wittiest peece of Ovid is beholding unto Parthenius Chius; even the magnified Virgil hath borrowed almost all his works: his Eclogues from Theocritus, his Georgicks from Hesiod and Aratus, his Æneads from Homer; the second Book whereof containing the exploit of Sinon and the Trojan horses (as Macrobius observeth) he hath *verbatim* derived from Pisander. Our own profession is not excusable herein. Thus Oribasius, Ætius and Ægineta have in a manner transcribed Galen. But Marcellus Empericus who hath left a famous work *de medicamentis*, hath word for word, transcribed all Scribonius Largus, *de compositione medicamentorum*, and not left out his very peroration. Thus may we perceive the Ancients were but men, even like our selves. The practice of transcription in our daies was no monster in theirs: Plagiary had not its nativity with printing; but began in times when thefts were difficult, and the paucity of books scarce wanted that invention.

Fourthly. While we so eagerly adhear unto Antiquity, and the accounts of elder times, we are to consider the fabulous condition thereof; and that we shall not deny if we call to minde the mendacity of Greece, from whom we have received most relations, and that a considerable part of Ancient times, was by the Greeks themselves termed *μυθικον*, that is, made up or stuffed out with fables. And surely the fabulous inclination of those daies, was greater then any since; which swarmed so with fables, and from such slender grounds, took hints for fictions, poysoning the world ever after; wherein, how far they exceeded, may be exemplified from Palæphatus, in his book of fabulous narrations.

That

The Antiquity, and some notable instances of Plagiarisme, that is, of transcribing or filching Authours.

An ancient Author who writ *μετ' ἀντιγράφων* five de *incredibilibus*, whereof some part is yet extant.

That fable of Orpheus, who by the melody of his musick, made woods and trees to follow him, was raised upon a slender foundation; for there were a crew of mad women, retired unto a mountain, from whence being pacified by his Musick, they descended with boughs in their hands, which unto the fabulosity of those times, proved a sufficient ground to celebrate unto all posterity the Magick of Orpheus harp, and its power to attract the senselesse trees about it. That Medea the famous Sorceresse could renue youth, and make old men young again, was nothing else, but that from the knowledge of simples she had a receipt to make white hair black, and reduce old heads into the tincture of youth again. The fable of Gerion and Cerberus with three heads was this: Gerion was of the City Tricarinia, that is, of three heads, and Cerberus of the same place was one of his dogs, which running into a cave upon pursuit of his masters oxen, Hercules perforce drew him out of that place; from whence the conceits of those daies affirmed no lesse, then that Hercules descended into hell, and brought up Cerberus into the habitation of the living. Upon the like grounds was raised the figment of Briareus, who dwelling in a City called Hecatonchiria, the fancies of those times assigned him an hundred hands. 'Twas ground enough to fancy wings unto Dædalus, in that he stole out of a window from Minos, and sailed away with his son Icarus; who steering his course wisely, escaped; but his son carrying too high a saile was drowned. That Niobe weeping over her children was turned into a stone, was nothing else but that during her life, she erected over their sepulchres, a marble tombe of her own. When Acteon had undone himself with dogs, and the prodigall attendance of hunting, they made a solemn story how he was devoured by his hounds. And upon the like grounds was raised the Anthropophagie of Diomedes his horses. Upon as slender foundation was built, the fable of the Minotaure; for one Taurus a servant of Minos gat his mistresse Pasiphae with childe; from whence the infant was named Minotaurus. Now this unto the fabulosity of those times was thought sufficient to accuse Pasiphae of Beastiality, or admitting conjunction with a Bull; and in succeeding ages gave a hint of depravity unto Domitian to act the fable into reality. In like manner, as Diodorus plainly delivereth, the famous fable of Charon had its nativity, who being no other but the common Ferryman of Ægypt, that waisted over the dead bodies from Memphis; was made by the Greeks to be the Ferryman of hell, and solemn stories raised after of him. Lastly, We shall not need to enlarge, if that be true which grounded the generation of Castor and Helena out of an egge, because they were born and brought up in an upper room, according unto the word *ἐκ τῆς οὐρανίας*, which with the Lacedæmonians had also that signification.

Fiftly, We applaud many things delivered by the Ancients, which are in themselves but ordinary, and come short of our own conceptions. Thus we usually extoll, and our Orations cannot escape the sayings of the wise men of Greece. *Nosce teipsum* of Thales: *Nosce tempus* of Pittacus: *Nihil nimis* of Cleobulus; which notwithstanding to speak indifferently, are but vulgar precepts in Morality, carrying with them nothing above the line, or beyond the extemporary sententiousness of common conceits with us. Thus we magnifie the Apothegmes, or reputed replies of wisdom, whereof many are to be seen in Laertius, more in Lycosthenes, not a few in the second book of Macrobius, in the salts of Cicero, Augustus, and the Comickall wits of those times: in most whereof there is not much to admire, and are me thinks exceeded, not only in the replies of wise men, but the passages of society and urbanities of our times. And thus we extoll their adages or proverbs; and Erasmus hath taken great pains to make collections of them; whereof notwithstanding the greater part will, I beleeve, unto indifferent judges be esteemed no extraordinaries; and may be paralleled, if not exceeded, by those of more unlearned nations, and many of our own.

The fable of Orpheus his harp, &c. whence occasioned.

314. P

Eating of Mans flesh.

p. 328
123.

vid. infra 100. 10. 7. 92
127. 128. 227. 314.

A pedanticall vanity, to quote Authors in matters of common sense or of familiar acknowledgement.

27.

Some remarkable mistakes among the Ancients.

This was Virgil's belief
of Salisburg about
A. D. 443 condemned
an heretic for affirming
that Anti-pod. b. d.
Ref. 100. Math. page 89.
See his Rel. m. d. p. 58.

Sixtly, We urge authorities, in points that need not, and introduce the testimony of ancient writers, to confirm things evidently beleaved, and whereto no reasonable hearer but would assent without them; such as are; *Nemo mortalium omnibus horis sapit. Virtute nil prestantius, nil pulchrius. Omnia vincit amor. Praclarum quiddam veritas.* All which, although things known and vulgar, are frequently urged by many men, and though triviall verities in our mouthes, yet noted from Plato, Ovid, or Cicero, they become reputed elegancies. For many hundred, to instance but in one we meet with while we are writing. Antonius Guevara that elegant Spaniard, in his book intituled, *The Diall of Princes*, beginneth his Epistle thus. Apolonius Thyaneus disputing with the Scholars of Hiarchas, said, that among all the affections of nature, nothing was more naturall, then the desire all have to preserve life; which being a confessed truth, and a verity acknowledged by all, it was a superfluous affectation, to derive its authority from Apolonius, or seek a confirmation thereof as farre as India, and the learned Scholers of Hiarchus. Which, whether it be not all one to strengthen common dignities and principles known by themselves, with the authority of Mathematicians; or think a man should beleave the whole is greater then its parts, rather upon the authority of Euclide, then if it were propounded alone; I leave unto the second and wiser cogitations of all men. Tis sure a practice that favours much of Pedanterie; a reserve of Puerility we have not shaken off from School; where being seasoned with Minor sentences; by a neglect of higher enquiries, they prescribe upon our riper ears, and are never worn out but with our memories.

Lastly, While we so devoutly adhere unto Antiquity in some things, we doe not consider we have deserted them in severall others. For they indeed have not only been imperfect, in the conceit of some things, but either ignorant or erroneous in many more. They understood not the motion of the eight sphear from West to East, and so conceived the longitude of the starres invariable. They conceived the torrid Zone uninhabitable, and so made frustrate the goodliest part of the earth. But we now know 'tis very well empeopled, and the habitation thereof esteemed so happy, that some have made it the proper seat of Paradise; and been so farre from judging it uninhabitable, that they have made it the first habitation of all. Many of the Ancients denied the Antipodes, and some unto the penalty of contrary affirmations; but the experience of our enlarged navigations, can now assert them beyond all dubitation. Having thus totally relinquisht them in some things, it may not be presumptuous, to examine them in others; but surely most unreasonable to adhere to them in all, as though they were infallible or could not erre in any.

CHAP. VII.

of Authority. 94.

NOr is only a resolved prostration unto Antiquity a powerfull enemy unto knowledge, but any confident adherence unto Authority, or resignation of our judgements upon the testimony of Age or Author whatsoever.

For first, To speak generally an argument from Authority to wiser examinations, is but a weaker kinde of proof, it being but a topicall probation, and as we term it, an inartificiall argument, depending upon a naked asseveration: wherein neither declaring the causes, affections or adjuncts of what we beleave, it carrieth not with it the reasonable inducements of knowledge; and therefore *Contra regentem principia, Ipse dixit, or Oportet discentem credere*, although postulates very accommodable unto Junior indoctrinations; yet are their authorities

Authority (simply) but a mean argument especially

327. 94. 128.

thorities but temporary, and not to be imbraced beyond the minority of our intellectuals. For our advanced beliefs are not to be built upon dictates, but having received the probable inducements of truth, we become emancipated from testimoniall ingagements, and are to erect upon the surer base of reason.

Secondly, Unto reasonable perensions it hath no place in some Sciences, small in others, and suffereth many restrictions, even where it is most admitted. It is of no validity in the Mathematicks, especially the mother part thereof Arithmetick and Geometry. For these Sciences concluding from dignities and principles known by themselves, receive not satisfaction from probable reasons, much lesse from bare and peremptory asseverations. And therefore if all Athens should decree, that in every triangle, two sides, which soever be taken, are greater then the side remaining; or that in rectangle triangles the square which is made of the side that subtendeth the right angle, is equall to the squares which are made of the sides containing the right angle: Although there be a certain truth therein, Geometritians notwithstanding would not receive satisfaction without demonstration thereof. 'Tis true, by the vulgarity of Philosophers there are many points beleaved without probation; nor if a man affirme from Ptolomy, that the Sun is bigger then the Earth, shall he probably meet with any contradiction; whereunto notwithstanding Astronomers will not assent without some convincing argument or demonstrative proof thereof. And therefore certainly of all men a Philosopher, should be no swearer: for an oath which is the end of controversies in Law, cannot determine any here; nor are the deepest sacraments or desperate imprecations of any force to perswade, where reason only, and necessary mediums must induce.

in the Mathe-
maticks

In naturall Philosophy more generally pursued amongst us, it carrieth but slender consideration; for that also proceeding from settled principles, therein is expected a satisfaction from scientificall progressions, and such as beget a sure or rationally belief. For if Authority might have made out the assertions of Philosophy, we might have held, that snow was black, that the sea was but the sweat of the earth, and many of the like absurdities. Then was Aristotle injurious to fall upon Melissus, to reject the assertions of Anaxagoras, Anaximander, and Empedocles; then were we also ungratefull unto himself; from whom our Junior endeavours embracing many things on his authority, our mature and secondary enquiries, are forced to quit those receptions, and to adhere unto the nearer accounts of reason. And although it be not usuall, even in Philosophicall tractates to make enumeration of Authors, yet are there reasons usually introduced, and to ingenuous readers do carry the stroak in the perswasion. And surely if we account it reasonable among our selves, and not injurious unto rationally Authors, no farther to abet their opinions then as they are supported by solid reasons: certainly with more excusable reservation may we shrink at their bare testimonies; whose argument is but precarious, and subsists upon the charity of our assentments.

and Physicks,

In Morality, Rhetorick, Law and History, there is I confesse a frequent and allowable use of testimony; and yet herein I perceive, it is not unlimitable, but admitteth many restrictions. Thus in law both Civill and Divine, that is only esteemed a legall testimony, which receives comprobation from the mouths of at least two witnesses; and that not only for prevention of calumny, but assurance against mistake; whereas notwithstanding the solid reason of one man, is as sufficient as the clamor of a whole Nation; and with imprecudate apprehensions begets as firm a belief as the authority or aggregated testimony of many hundreds. For reason being the very root of our natures, and the principles thereof common unto all; what is against the laws of true reason, or the unerring

understanding of any one, if rightly apprehended, must be disclaimed by all Nations, and rejected even by mankind.

Again, A testimony is of small validity if deduced from men out of their own profession; so if Lactantius affirm the figure of the earth is plain, or Austin himself deny there are Antipodes; though venerable Fathers of the Church, and ever to be honoured, will their Authorities prove sufficient to ground a belief thereon? whereas notwithstanding the solid reason or confirmed experience of any man, is very approvable in what profession soever. So Raymund Sebund, a Physitian of Tholouze, besides his learned Dialogues, *de natura humana*, hath written a naturall Theologie; demonstrating therein the Attributes of God, and attempting the like in most points of Religion. So Hugo Grocius a Civilian, did write an excellent Tract of the verity of Christian Religion. Wherein most rationally delivering themselves, their works will be embraced by most that understand them, and their reasons enforce belief even from prejudicate Readers. Neither indeed have the authorities of men been ever so awfull; but that by some they have been rejected, even in their own professions. Thus Aristotle affirming the birth of the Infant or time of its gestation, extendeth sometimes unto the eleventh moneth, but Hippocrates averring that it exceedeth not the ~~teath~~ ^{teath}: Adrian the Emperour in a solemn processe, determined for Aristotle; but Justinian many years after, took in with Hippocrates and reversed the Decree of the other. Thus have Councils not only condemned private men, but the Decrees and Acts of one another. So Galen after all his veneration of Hippocrates, in some things hath fallen from him. Avicen in many from Galen; and others succeeding from him. And although the singularity of Paracelsus be intolerable, who sparing only Hippocrates, hath reviled not only the Authors, but almost all the learning that went before him; yet is it not much lesse injurious unto knowledge obstinately and convincibly to side with any one. Which humour unhappily possessing many, they have by prejudice withdrawn themselves into parties, and contemning the sovereignty of truth, seditiously abetted the private divisions of error.

Moreover a Testimony in points historicall, and where it is of unavoidable use, is of no illation in the negative; nor is it of consequence that Herodotus writing nothing of Rome, there was therefore no such city in his time; or because Dioscorides hath made no mention of Unicorns' horn, there is therefore no such thing in Nature. Indeed, intending an accurate enumeration of Medicall materials, the omission hereof affords some probability, it was not used by the Ancients; but will not conclude the nonexistence thereof. For so may we annihilate many simples unknown to his enquiries, as Senna, Rhabarbe, Bezoar, Ambregris, and divers others. Whereas indeed the reason of man hath no such restraint; concluding not only affirmatively but negatively; not only affirming there is no magnitude beyond the last heavens, but also denying there is any vacuity within them. Although it be confessed, the affirmative hath the prerogative illation, and Barbara engrosseth the powerfull demonstration.

Lastly, The strange relations made by Authors, may sufficiently discourage our adherence unto Authority, and which if we beleieve we must be apt to swallow any thing. Thus Basil will tell us, the Serpent went erect like man, and that that beast could speak before the fall. To status would make us beleieve that Nilus encreaseth every new Moon. Leonardo Fioravanti an Italian Physitian, beside many other secrets assumeth unto himself the discovery of one concerning Pellitory of the wall; that is, that it never groweth in the sight of the North starre. *Done si possa vedere la stella Tramontana*, wherein how wide he is from truth is easily discoverable unto every one, who hath but

but Astronomy enough to know that starre. Franciscus Sanctius in a laudable Comment upon Alciats Emblems, affirmeth and that from experience, a Nightingale hath no tongue. *Avem Philomelam lingua carere pro certo affirmare possum, nisi me oculi fallunt.* Which if any man for while shall beleieve upon his experience, he may at his leasure refute it by his own. What fool almost would beleieve, at least, what wise man would relye upon that Antidote delivered by Pierius in his Hieroglyphicks against the sting of a Scorpion? that is, to sit upon an Asse with ones face toward his taile; for so the pain leaveth the man, and passeth into the beast. It were me thinks but an uncomfortable receipt for a Quartane Ague (and yet as good perhaps as many others used) to have recourse unto the remedy of Sammonicus; that is, to lay the fourth book of Homers Iliads under ones head, according to the precept of that Physitian and Poet, *Mœorie Iliados quartum suppone trementi.* There are surely few that have belief to swallow, or hope enough to experiment the Collyrium of Albertus, which promiseth a strange effect, and such as Theeves would count ineffimable; that is, to make one see in the dark: yet thus much, according unto his receipt, will the right eye of an Hedge-hog boyled in oyle and preserved in a brazen vessell effect. As strange it is, and unto vicious inclinations were worth a nights lodging with Lais, what is delivered in Kiranides; that the left stone of a Weefell, wrapt up in the skin of a she Mule, is able to secure incontineny from conception.

These with swarms of others have men delivered in their writings, whose verities are only supported by their Authorities: but being neither consonant unto reason, nor correspondent unto experiment, their affirmations are unto us no Axiomes; we esteem thereof as things unsaid, and account them but in the list of nothing. I wish herein the Chymistes had been more sparing; who overmagnifying their preparations, inveigle the curiosity of many, and delude the security of most. For if experiments would answer their encomiums, the Stone and Quartane Agues, were not opprobrious unto Physitians; we might contemn that first, and most uncomfortable Aphorisme of Hippocrates; For surely that Art were soon attained, that hath so generall remedies; and life could not be short, were there such to prolong it.

An eye medicine. 25.

164.

Ten thousand drachmes.

2, 5.

Ars longa, vita brevis.

CHAP. VIII.

A brief enumeration of Authors.

NOW for as much as we have discoursed of Authority, and there is scarce any tradition or popular error but stands also delivered by some good Author; we shall endeavour a short discovery of such as for the major part have given authority hereto: who though excellent and usefull Authors, yet being either transcriptive, or following common relations, their accounts are not to be swallowed at large, or entertained without a prudent circumspection. In whom the *ipse dixit*, although it be no powerfull argument in any, is yet lesse authentick then in many other, because they deliver not their own experiences, but others affirmations, and write from others as we our selves from them.

1. The first in order as also in time, shall be Herodotus of Halicarnassus, an excellent and very elegant Historian, whose books of history were so well received in his own daies, that at their rehearfall in the Olympick games, they obtained the names of the nine Muses, and continued in such esteem unto descending Ages, that Cicero termed him *Historiarum parens*. And Dionysius his Countreyman, in an Epistle to Pompey, after an expresse comparison, affords

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him

*See 100 Authors of
his Elogies of
The Authors
judgement, or a
character given
of some eminent
Authors.*

him the better of Thucydides; all which notwithstanding, he hath received from some, the stile of *Mendaciorum pater*; his authority was much infringed by Plutarch, who being offended with him, as Polybius had been with Philarcus, for speaking too coldly of his Countreymen, hath left a particular Tract, *de Malignitate Herodoti*. But in this later Century, Camerarius and Stephanus have stepped in, and by their witty Apologies, effectually endeavoured to frustrate the Arguments of Plutarch or any other. Now in this Author, as may be observed in our ensuing Discourse, and is better discernable in the perusal of himself, there are many things fabulously delivered, and not to be accepted as truths: whereby neverthelesse if any man be deceived, the Author is not so culpable as the believer. For he indeed imitating the father Poet, whose life he hath also written, and as Thucydides observeth, as well intending the delight as benefit of his Reader, hath besprinkled his work with many fabulosities, whereby if any man be led into error, he mistaketh the intention of the Author, who plainly confesseth he writeth many things by hearsay, and forgetteth a very considerable caution of his, that is, *Ego quæ fando cognovi, exponere narratione mea debeo omnia; credere autem esse vera omnia, non debeo*.

2. In the second place is Ctesias the Cnidian, Physician unto Artaxerxes King of Persia; his books are often cited by ancient Writers; and by the industry of Stephanus and Rodomanus, there are extant some fragments thereof in our daies; he wrote the History of Persia, and many narrations of India. In the first as having a fair opportunity to know the truth, and as Diodorus affirmeth the perusal of Persian Records, his testimony is acceptable. In his Indian relations, wherein are contained strange and incredible accounts, he is surely to be read with suspension; these were they which weakned his authority with former ages; for as we may observe, he is seldome mentioned, without a derogatory parenthesis in any Author. Aristotle besides the frequent undervaluing of his authority, in his books of Animals gives him the lie no lesse then twice, concerning the seed of Elephants. Strabo in his eleventh Book hath left a harder censure of him. *Equidem facilius Hesiodo & Homero, aliquis fidem adhibuerit, itemque Tragicis Poetis, quam Ctesie, Herodoto, Hellanico & eorum similibus*. But Lucian hath spoken more plainly then any. *Scripsit Ctesias de Indorum regione, deque iis quæ apud illos sunt, ea quæ nec ipse vidit, neque ex ullius sermone audivit*. Yet were his relations taken up by some succeeding Writers, and many thereof revived by our Countryman, Sir John Mandevell, Knight and Doctor in Physick; who after thirty years peregrination died at Leige, and was there honourably interred. He left a book of his travells, which hath been honoured with the translation of many languages, and now continued above three hundred years; herein he often attesteth the fabulous relations of Ctesias, and seems to confirm the refuted accounts of Antiquity. All which may still be received in some acceptions of morality, and to a pregnant invention, may afford commendable mythologie; but in a naturall and proper exposition, it containeth impossibilities and things inconsistent with truth.

There is a Book *de mirandis auditionibus*, ascribed unto Aristotle; another *de mirabilibus narrationibus*, written long after by Antigonus; another also of the same title by Plegon Trallianus, translated by Xilander, and with the Annotations of Meursius; all whereof make good the promise of their titles and may be read with caution. Which if any man shall likewise observe in the Lecture of Philostratus, concerning the life of Apollonius; or not only in ancient Writers, but shall carry a wary eye, on Paulus Venetus, Jovius, Olaus Magnus, Nierembergius, and many other, I think his circumspection is laudable, and he may thereby decline occasion of Error.

4. Dioscorides Anazarbeus; he wrote many books in Physick, but six there-
of

of *de Materia Medica*, have found the greatest esteem; he is an Author of good Antiquity and use; preferred by Galen before Cratevas, Pamphilus, and all that attempted the like description before him; yet all he delivereth therein is not to be conceived Oraculous. For beside, that following the warres under Anthony, the course of his life would not permit a punctuall examen in all; There are many things concerning the nature of simples, traditionally delivered, and to which I beleieve he gave no assent himself. It had been an excellent receipt, and in his time when Sables were scarce in fashion of very great use, if that were true, which he delivers, that Vitex, or Agnus Castus held only in the hand, preserveth the rider from galling. It were a strange effect, and whores would forsake the experiment of Savine, if that were a truth which he delivereth of Brake or femall fearn, that only treading over it it causeth a sudden abortion. It were to be wished true, and women would Idolize him, could that be made out which he recordeth of Phyllon, Mercury, and other vegetables, that the juice of the masse plant drunk, or the leaves but applied unto the genitals, determines their conceptions unto males. In these relations although he be more sparing, his predecessors were very numerous; and Galen hereof most sharply accuseth Pamphilus. Many of the like nature we meet sometimes in Oribasius, Aecius, Trallianus, Serapion, Evax and Marcellus; whereof some containing no colour of verity, we may at first sight reject them; others which seem to carry some face of truth, we may reduce unto experiment. And herein we shall rather perform good offices unto truth, then any disservice unto their relators, who have well deserved of succeeding ages, from whom having received the conceptions of former times, we have the readier hint of their conformity with ours, and may accordingly explore and sift their verities.

See a more probable way
infra. 162

5. *Plinius Secundus* of Verona; a man of great eloquence, and industry indefatigable, as may appear by his writings, especially those now extant, and which are never like to perish, but even with learning it self; that is, his naturall History. He was the greatest Collector or Rhapsodist of all the Latines, and as *Suetonius de viris Illustribus* observeth, he collected this piece out of two thousand Latine and Greek Authors. Now, what is very strange, there is scarce a popular error passant in our daies, which is not either directly expressed, or diductively contained in this work; which being in the hands of most men, hath proved a powerfull occasion of their propogation. Wherein notwithstanding the credulity of the Reader, is more condemnable then the curiosity of the Author. For commonly he nameth the Authors, from whom he received those accounts; and writes but as he reads, as in his Preface to *Vespasian* he acknowledgeth.

See this Pliny contradicting
himself. pag. 129. 93. 135.
89.

Plinius naturall
History collected
out of 2000. sever-
all Authors.

6. *Claudius Aelianus*; who flourished not long after in the reign of *Trajan*, unto whom he dedicated his *Tacticks*; an elegant and miscellaneous Author; he hath left two books which are in the hands of every one, his *History of Animals*, and his *Varia historia*. Wherein are contained many things suspicious, not a few false, some impossible; he is much beholding unto *Ctesias*, and in many subjects writes more confidently then *Plinie*.

7. *Julius Solinus*, who lived also about his time: He left a work entituled *Polyhistor*, containing great variety of matter, and is with most in good request at this day. But to speak freely what cannot be concealed, it is but *Plinie* varied, or a transcription of his naturall history; nor is it without all wonder it hath continued so long, but is now likely, and deserves indeed to live for ever; not so much for the elegancy of the text, as the excellency of the comment, lately performed by *Salmasius*, under the name of *Plinian exercises*.

8. *Athenæus* a delectable Author and very various, and as *Causabone* in his

his Epistle files him *Græcorum Plinius*. There is extant of his, a famous piece under the name of Deipnosophista, or *cæna sapientum*, containing the discourse of many learned men, at a feast provided by Laurentius. It is a laborious collection out of many Authors, and some whereof are mentioned nowhere else. It containeth strange and singular relations, not without some spice or sprinkling of all learning. The Author was probably a better Grammarian then Philosopher, dealing but hardly with Aristotle and Plato, and betrayeth himself much in his Chapter *de curiositate Aristotelis*. In brief, he is an Author of excellent use, and may with discretion be read unto great advantage: and hath therefore well deserved the Comments of Causabon and Dalecampius. But being miscellaneous in many things, he is to be received with suspicion; for such as amasse all relations, must erre in some, and may without offence be unbelieved in many.

9. We will not omit the works of Nicander, a Poet of good Antiquity, that is, his *Theriaca*, and *Alexipharmaca*, translated and commented by Gorraus: for therein are contained severall traditions, and popular conceits, of venomous beasts; which only deducted, the work is to be embraced, as containing the first description of poysons and their Antidotes, whereof Dioscorides, Pliny and Galen, have made especiall use in elder times; and Ardoynus, Grevinus and others, in times more near our own. We might perhaps let passe Oppianus, that famous Cilician Poet. There are extant of his in Greek, four books of Cynegeticks or venation, five of Halieuticks or piscation, commented and published by Ritterhusius; wherein describing beasts of venery and fishes, he hath indeed but sparingly inserted the vulgar conceptions thereof. So that abating the annuall mutation of Sexes in the Hyana, the single Sex of the Rhinoceros, the antipathy between two drummes, of a Lamb and a Wolfes skinne, the infirmity of Cubbes, the venation of Centaures, the copulation of the Murena and the Viper, with some few others, he may be read with great delight and profit. It is not without some wonder his elegant lines are so neglected. Surely hereby we reject one of the best Epick Poets, and much condemn the judgement of Antoninus, whose apprehensions so honoured his Poems, that as some report, for every verse, he assigned him a Stater of gold.

10. More warily are we to receive the relations of Philes, who in Greek Iambicks delivered the proprieties of Animals, for herein he hath amassed the vulgar accounts recorded by the Ancients, and hath therein especially followed Ælian. And likewise Johannes Tzetzes, a Grammarian, who besides a Comment upon Hesiod and Homer, hath left us *Chiliads de Varia Historia*; wherein delivering the accounts of Ctesias, Herodotus, and most of the Ancients, he is to be embraced with caution, and as a transcriptive relator.

11. We cannot without partiality omit all caution even of holy Writers, and such whose names are venerable unto all posterity; not to meddle at all with miraculous Authors, or any Legendary relators. We are not without circumspection to receive some books even of Authentick and renowned Fathers. So are we to read the leaves of Basil and Ambrose, in their books, entituled *Hexameron*, or *The description of the Creation*; Wherein delivering particular accounts of all the Creatures, they have left us relations futable to those of Ælian, Plinie and other naturall Writers; whose authorities herein they followed, and from whom most probably they desumed their Narrations. And the like hath been committed by Epiphanius, in his *Physiologie*, that is, a book he hath left concerning the nature of Animals. With no lesse caution must we look on Isidor, Bishop of Sevil, who having left in twenty books, an accurate work *de Originibus*, hath to the Etymologie of words, superadded their received natures; wherein most generally he consents with common opinions and Authors which have delivered them.

12. Alber-

That write
Hex meters or
long Verses.

12. Albertus Bishop of Ratisbone; for his great learning and latitude of knowledge surnamed Magnus; besides divinity, he hath written many Tracts in Philosophy; what we are chiefly to receive with caution, are his naturall tractates, more especially those of Mineralls, Vegetables and Animals, which are indeed chiefly Collections out of Aristotle, Ælian and Plinie, and respectively contain many of our popular errors. A man who hath much advanced these opinions by the authority of his name, and delivered most conceits, with strict enquiry into few. In the same classis, may well be placed Vincentius Belluacensis; or rather he from whom he collected his *Speculum naturale*, that is, *Gulielmus de Conchis*; as also *Hortus Sanitatis*; and *Bartholomeus Glanvill*, surnamed *Anglicus*, who writ *de Proprietatibus rerum*. Hither also may be referred Kiranides; which is a collection out of Harpocraton the Greek, and sundry Arabick writers; delivering not only the Naturall but Magicall propriety of things; a work as full of vanity as variety; containing many relations, whose invention is as difficult as their beliefs, and their experiments sometime as hard as either.

ibid. 21. f.

175.

21

13. We had almost forgot *feronimus Cardanus* that famous Physician of Milan, a great enquirer of truth, but too greedy a receiver of it; he hath left many excellent discourses, Medicall, Naturall and Astrologicall; the most suspicious are those two he wrote by admonition in a dream, that is, *de subtilitate & varietate rerum*. Assuredly this learned man hath taken many things upon trust, and although examined some, hath let slip many others. He is of singular use unto a prudent Reader; but unto him that only desireth Hoties, or to replenish his head with varities; like many others before related, either in the Originall or confirmation, he may become no small occasion of error.

14. Lastly, Authors are also suspicious, nor greedily to be swallowed, who pretend to write of secrets, to deliver Antipathies, Sympathies, and the occult abstrusities of things; in the list whereof may be accounted, Alexis, Pedimontanus: Antonius Mizaldus, Trinum Magicum, and many others; not omitting that famous Philosopher of Naples, Baptista Porta; in whose works, although there be contained many excellent things, and verified upon his own experience; yet are there many also receptary, and such as will not endure the test. Who although he hath delivered many strange relations in his *Phytagnomia*, and his *Villa*; yet hath he more remarkably expressed himself in his Naturall Magick, and the miraculous effects of Nature. Which containing various and delectable subjects, withall promising wondrous and easie effects, they are entertained by Readers at all hands; whereof the major part sit down in his authority, and thereby omit not only the certainty of truth, but the pleasure of its experiment.

Phytagnomia.

Thus have we made a brief enumeration of these learned men; not willing any to decline their Works (without which it is not easie to attain any measure of generall knowledge,) but to apply themselves with caution thereunto. And seeing the lapses of these worthy pens, to cast a wary eye on those diminutive, and pamphlet Treaties daily published amongst us; pieces maintaining rather Typography then verity; Authors presumably writing by common places, wherein for many years promiscuously amassing all that makes for their subject, they break forth at last in trite and fruitlesse Rapsodies; doing thereby not only open injury unto learning, but committing a secret treachery upon truth. For their relations falling upon credulous Readers, they meet with prepared beliefs; whose supinities had rather assent unto all, then adventure the trial of any.

See his Relig. maximi pag. 55.

Thus, I say, must these Authors be read, and thus must we be read our selves; for discoursing of matters dubious, and many controvertible truths;

See 2. Auth. of fishes to the Reader in fine.

we cannot without arrogancy entreat a credulity, or implore any farther assent, then the probability of our reasons, and verity of experiments induce.

CHAP. IX.

of the same.

There are beside these Authors and such as have positively promoted errors, divers other which are in some way accessory; whose verities although they doe not directly assert, yet doe they obliquely concur unto their beliefs. In which account are many holy Writers, Preachers, Moralists, Rhetoricians, Orators and Poets; for they depending upon invention, deduce their mediums from all things whatsoever; and playing much upon the simile, or illustrative argumentation, to induce their Enthymemes unto the people, they take up popular conceits, and from traditions unjustifiable or really false, illustrate matters of undeniable truth. Wherein although their intention be sincere, and that course not much condemnable; yet doth it notoriously strengthen common errors, and authorise opinions injurious unto truth.

Argument.

Expressions of holy Scripture fitted many times rather to popular and common apprehension, then to the exact nature of things.

Thus have some Divines drawn into ~~argument~~ ^{proof} the fable of the Phœnix, made use of that of the Salamander, Pelican, Basilisk, and divers relations of Pliny; deducing from thence most worthy morals, and even upon our Saviour. Now although this be not prejudiciall unto wiser judgements, who are but weakly moved with such argument, yet is it oftentimes occasion of error unto vulgar heads, who expect in the fable as equall a truth as in the morall, and conceive that infallible Philosophy, which is in any sense delivered by Divinity. But wiser discerners do well understand, that every Art hath its own circle; that the effects of things are best examined, by sciences wherein are delivered their causes; that strict and definitive expressions, are always required in Philosophy, but a loose and popular delivery will serve oftentimes in Divinity. As may be observed even in holy Scripture; which often omitteth the exact account of things; describing them rather to our apprehensions, then leaving doubts in vulgar mindes, upon their unknown and Philosophicall descriptions. Thus it termeth the Sun and the Moon, the two great lights of heaven. Now if any shall from hence conclude, the Moon is second in magnitude unto the Sunne, he must excuse my belief; and I think it cannot be taken for heresie, if herein I rather adhere unto the demonstration of Ptolomy, then the popular description of Moses. Thus is it said, Chron. 2. 4. That Solomon made a molten sea of ten cubits, from brim to brim round in compasse, and five cubits the height thereof, and a line of thirty cubits did compasse it round about. Now in this description, the circumference is made just treble unto the diameter, that is, as 10. to 30. or 7. to 21. But Archimedes demonstrates in his Cyclometria, that the proportion of the diameter, unto the circumference, is as 7. unto almost 22. which will occasion a sensible difference, that is almost a cubit. Now if herein I adhere unto Archimedes who speaketh exactly, rather then the sacred Text which speaketh largely; I hope I shall not offend Divinity: I am sure I shall have reason and experience of every circle to support me.

See A like Instance. 185.

91

Thus Morall Writers, Rhetoricians and Orators make use of severall relations which will not consist with verity. Aristotle in his Ethicks takes up the conceit of the Bever, and the divulsion of his Testicles. The tradition of the Bear, the Viper, and divers others are frequent amongst Orators. All which although unto the illiterate and undiscerning hearers may seem a confirmation of their realities; yet

yet is this no reasonable establishment unto others, who will not depend hereon otherwise then common Apologues; which being of impossible falsities, do notwithstanding include wholesome moralities, and such as expiate the trespasses of their absurdities.

The Hieroglyphicall doctrine of the Egyptians (which in their four hundred years cohabitation some conjecture they learned from the Hebrews) hath much advanced many popular conceits; for using an Alphabet of things, and not of words, through the Image and pictures thereof, they endeavoured to speak their hidden conceits, in the letters and language of nature. In pursuit whereof, although in many things, they exceeded not their true and reall apprehensions; yet in some other they either framing the story, or taking up the tradition, conduceable unto their intentions, obliquely confirmed many falsities; which as authentick and conceded truths did after passe unto the Greeks; from them unto other nations, are still retained by symbolical writers, Emblematistes, Heraldes and others. Whereof some are strictly maintained for truths, as naturally making good their artificiall representations; others symbollically intended are literally received, and swallowed in the first sense, without all gust of the second. Famous in this doctrine in former ages were Heraiscus, Cheremon and Epilus, especially Orus Apollo Niliacus; who lived in the reign of Theodosius and in Egyptian language left two books of Hieroglyphicks, translated into Greek by Philippus, in Latine published by Hoschelius, and a full collection of all made lately by Pierius.

Painters who are the visible representers of things, and such as by the learned sense of the eye endeavour to inform the understanding, are not inculpable herein; who either describing naturals as they are, or actions as they have been, have oftentimes erred in their delineations; which being the books that all can read, are fruitfull advancers of these conceptions; especially in common and popular apprehensions; who being unable for farther enquiry, must rest in the text, and letter of their descriptions.

Lastly, Poets and Poeticall Writers have in this point exceeded others, leaving unto us the notions of Harpes, Centaurs, Gryphins, and many more. Now however to make use of fictions, Apologues and fables be not unwarrantable, and the intent of these inventions might point at laudable ends: Yet doe they afford our junior capacities a frequent occasion of error; setting impressions in our tender memories, which our advanced judgements doe generally neglect to expunge. This way the vain and idle fictions of the Gentiles did first insinuate into the heads of Christians; and thus are they continued even unto our daies: Our first and literary apprehensions being commonly instructed in Authors which handle nothing else; wherewith our memories being stuffed, our inventions become Pedantick, and cannot avoid their allusions; driving at these as at the highest elegancies, which are but the frigidities of wit, and become not the genius of manly ingenuities. It were therefore no losse like that of Galens study; if these had found the same fate; and would in some way requite the neglect of solid Authors, if they were lesse pursued. For were a pregnant wit educated in ignorance hereof, receiving only impressions from realities; upon such solid foundations, it must surely raise more substantiall superstructions, and fall upon very many excellent strains, which have been jussled off by their intrusions.

bid. 223. *

bid. 222 Q 223

223.

Nota bene: Sagan Rant
and inscriptions of 18. 9195

CHAP. X.

Of the last and common promoter of false Opinions, the endeavours of Satan.

The devils method of propagating error in the world.

BUT beside the infirmities of humane nature, the seed of error within our selves, and the severall waies of delusion from each other, there is an invisable Agent, and secret promoter without us, whose activity is undiscerned, and plaies in the dark upon us; and that is the first contriver of Error, and professed opposer of Truth, the devil. For though permitted unto his proper principles, Adam perhaps would have sinned without the suggestion of Satan, and from the transgressive infirmities of himself might have erred alone, as well as the Angels before him. And although also there were no devil at all, yet is there now in our natures a confessed sufficiency unto corruption; and the frailty of our own Oeconomie, were able to betray us out of truth; yet wants there not another Agent, who taking advantage hereof, proceedeth to obscure the diviner part, and efface all tract of its traduction: To attempt a particular of all his wiles, is too bold an Arithmetick for man: what most considerably concerneth his popular and practised waies of delusion, he first deceiveth mankind in five main points concerning God and himself.

And first his endeavours have ever been, and they cease not yet to instill a belief in the minde of man, *There is no God at all.* And this he specially labours to establish in a direct and literall apprehension; that is, that there is no such reality existent; that the necessity of his entity dependeth upon ours, and is but a Politicall Chymera; That the naturall truth of God is an artificiall erection of man, and the Creator himself but a subtile invention of the creature. Where he succeeds not thus high, he labours to introduce a secondary and deductive Atheisme; that although, men concede there is a God, yet should they deny his providence; and therefore assertions have flown about, that he intendeth only the care of the species or common natures, but letteth loose the guard of individuals, and single existencies therein: That he looks not below the Moon, but hath designed the regiment of sublunary affairs unto inferior deputations. To promote which apprehensions or empuzzell their due conceptions, he casteth in the notions of fate, destiny, fortune, chance and necessity; terms commonly misconceived by vulgar heads, and their propriety sometime perverted by the wisest. Whereby extinguishing in mindes the compensation of vertue and vice, the hope and fear of heaven or hell; they comply in their actions unto the drift of his delusions, and live like creatures below the capacity of either.

Now hereby he not only undermineth the Base of religion, and destroyeth the principle preambulous unto all belief, but puts upon us the remotest error from truth. For Atheisme is the greatest falsity, and to affirm there is no God, the highest lie in Nature. And therefore strictly taken, some men will say his labour is in vain; For many there are, who cannot conceive there was ever any absolute Atheist, or such as could determine there was no God, without all check from himself, or contradiction from his other opinions; and therefore those few so called by elder times, might be the best of Pagans; suffering that name rather, in relation to the gods of the Gentiles, then the true Creatour of all. A conceit that cannot befall his greatest enemy, or him that would induce the same in us; who hath a sensible apprehension hereof, for he beleeveeth with trembling. To speak yet more strictly and conformably unto some opinions, no creature can wish thus much; nor can the will which hath a power to runne into velleities, and wishes of impossibilities, have any *utinam* of this.

For

For to desire there were no God, were plainly to unwish their own being; which must needs be annihilated in the subtraction of that essence, which substantially supporteth them, and restrains them from regression into nothing. And if as some contend, no creature can desire his own annihilation, that Nothing is not appetible, and not to be at all, is worse then to be in the miserablest condition of something; the devil himself could not embrace that motion, nor would the enemy of God be freed by such a Redemption.

But coldly thriving in this designe, as being repulsed by the principles of humanity, and the Dictates of that production, which cannot deny its original, he fetcheth a wider circle; and when he cannot make men conceive there is no God at all, he endeavours to make them beleieve, there is not one but many; wherein he hath been so successfull with common heads, that he hath led their belief thorow all the works of Nature.

2 Now in this latter attempt, the subtilty of his circumvention, hath indirectly obtained the former. For although to opinion there be many gods, may seem an access in Religion, and such as cannot at all consist with Atheisme, yet doth it diductively and upon inference include the same: for unity is the inseparable and essentiall attribute of Deity; And if there be more then one God, it is no Atheisme to say there is no God at all. And herein though Socrates only suffered, yet were Plato and Aristotle guilty of the same truth; who demonstratively understanding the simplicity of perfection, and the indivisible condition of the first causator, it was not in the power of earth, or Areopagy of hell to work them from it. For holding an * Apodicticall knowledge, and assured science of its verity, to perswade their apprehensions unto a plurality of gods in the world, were to make Euclide beleieve there were more then one Center in a Circle, or one right Angle in a Triangle; which were indeed a fruitlesse attempt, and inferreth absurdities beyond the evasion of hell. For though Mechanick and vulgar heads ascend not unto such comprehensions, who live not commonly unto half the advantage of their principles; yet did they not escape the eye of wiser Minervas, and such as made good the genealogie of Jupiters brains; who although they had divers styles for God, yet under many appellations acknowledged one divinity: rather conceiving thereby the evidence or acts of his power in severall waies and places, then a multiplication of Essence, or reall distraction of unity in any one.

3 Again, To render our errors more monstrous (and what unto miracle sets forth the patience of God,) he hath endeavoured to make the world beleieve, that he was God himself; and failing of his first attempt to be but like the highest in heaven, he hath obtained with men to be the same on earth; and hath accordingly assumed the annexes of divinity, and the prerogatives of the Creator, drawing into practice the operation of miracles, and the prescience of things to come. Thus hath he in a specious way wrought cures upon the sick: 34. plaied over the wondrous acts of Prophets, and counterfeited many miracles of Christ and his Apostles. Thus hath he openly contended with God; And to this effect his insolency was not ashamed to play a solemne prize with Moses; wherein although his performance were very specious, and beyond the common apprehension of any power below a Deity, yet was it not such as could make good his Omnipotency. For he was wholly confounded in the conversion of dust into lice. An act Philosophy can scarce deny to be above the power of Nature, nor upon a requisite predisposition beyond the efficacy of the Sun. Wherein notwithstanding the head of the old Serpent was confessedly too weak for Moses hand, and the arm of his Magicians too short for the finger of God.

Thus hath he also made men beleieve that he can raise the dead; that he hath the key of life and death, and a prerogative above that principle which makes

This Author when he would afford a thing strong plays in his Religion. He will not be nothing if p. 148.

Areopagus the sever Court of Athens.

* Demonstrative.

no regression from privations. The Stoicks that opinioned the souls of wise men, dwelt about the Moon, and those of fools wandred about the earth, advantaged the conceit of this effect; wherein the Epicureans, who held that death was nothing, nor nothing after death, must contradict their principles to be deceived. Nor could the Pythagorian or such as maintained the transmigration of souls give easie admittance hereto: for holding that separated souls, successively supplied other bodies; they could hardly allow the raising of souls from other worlds, which at the same time, they conceived conjoined unto bodies in this. More inconsistent with these opinions, is the error of Christians, who holding the dead doe rest in the Lord, doe yet beleieve they are at the lure of the devil; that he who is in bonds himself commandeth the fetters of the dead, and dwelling in the bottomlesse lake, the blessed from Abrahams bosome, that can beleieve the reall resurrection of Samuel; or that there is any thing but delusion, in the practice of *Necromancy and popular conception of Ghosts.

He hath moreover endeavoured the opinion of Deity, by the delusion of Dreams, and the discovery of things to come in sleep, above the prescience of our waked senses. In this expectation he perswaded the credulity of elder times to take up their lodging before his temple, in skinnes of their own sacrifices: till his reservednesse had contrived answers, whose accomplishments were in his power, or not beyond his presagement. Which way, although it hath pleased Almighty God, sometimes to reveale himself, yet was the proceeding very different. For the revelations of heaven are conveyed by new impressions, and the immediate illumination of the soul; whereas the deceiving spirit, by concitation of humors, produceth his conceited phantasmes; or by compounding the species already residing, doth make up words which mentally speak his intentions.

But above all other he most advanced his Deity in the solemn practice of Oracles, wherein in severall parts of the world, he publickly professed his divinity; but how short they flew of that spirit, whose omniscience they would resemble, their weaknesse sufficiently declared. What jugling there was therein, the Oratour plainly confessed, who being good at the same game himself, could say that Pythia Philippised. Who can but laugh at the carriage of Ammon unto Alexander, who addressing unto him as God, was made to beleieve, he was a god himself? How openly did he betray his Indivinity unto Crasus, who being ruined by his Amphibology, and expostulating with him for so ungratefull a deceit, received no higher answer, then the excuse of his impotency upon the contradiction of fate, and the settled law of powers beyond his power to controule! What more then sublunary directions, or such as might proceed from the oracle of humane reason, was in his advice unto the Spartans in the time of a great plague; when for the cessation thereof, he wisht them to have recourse unto a Fawn, that is in open terms unto one Nebrus, a good Physitian of those daies? From no diviner a spirit came his reply unto Caracalla, who requiring a remedy for his gout, received no other counsell then to refrain cold drink; which was but a dieteticall caution, and such as without a journey unto Æsculapius, culinary prescription and kitchen Aphorismes might have afforded at home. Nor surely if any truth there were therein of more then naturall activity was his counsell unto Democritus, when for the falling sicknesse he commended the Maggot in a Goats head. For many things secret are true; sympathies and antipathies are safely authentick unto us, who ignorant of their causes may yet acknowledge their effects. Beside being a naturall Magician he may perform many acts in waies above our knowledge, though not transcending our naturall power, when our knowledge shall direct it; part hereof hath been discovered by himself, and some by humane indagation: which

*Book II Religio Medicæ
pag. 81. where he says that
Pythagorians are not souls of
dead men but of unquiet spirits
of Devils*

31.

The Authors opinion, touching Necromancy and apparitions of the spirits of mended. * Divination by the dead.

How the devil works his pretended revelations or predictions.

Ind. infra. 308.

Demoisthenes.

Nebros in Greek, a Fawn.
34

Rel. med. 65.

which though magnified as fresh inventions unto us, are stale unto his cognition. I hardly beleeve he hath from elder times unknown the verticity of the loadstone; surely his perspicacity discerned it to respect the North, when ours beheld it indeterminately. Many secrets there are in nature of difficult discovery unto man, of easie knowledge unto Satan; whereof some his vain glory cannot conceale, others his envy will never discover.

Again, Such is the mystery of his delusion, that although he labour to make us beleeve that he is God, and supremest nature whatsoever, yet would he also perswade our beliefs, that he is lesse then Angels or men; and his condition not only subjected unto ratioll powers, but the action of things which have no efficacy on our selves. Thus hath he inveigled no small part of the world into a credulity of artificiall Magick: That there is an Art, which without compact commandeth the powers of hell; whence some have delivered the polity of spirits, and left an account even to their Provinciall dominions; that they stand in awe of charmes, spells and conjurations, that he is afraid of letters and characters, of notes and dashes, which set together doe signifie nothing; and not only in the dictionary of man, but the subtiler vocabulary of Satan. That there is any power in Bitumen, pitch or brimstone, to purifie the air from his uncleannesse; that any vertue there is in Hipericon to make good the name of *fuga Demonis*; any such magick as is ascribed unto the root Baaras by Josephus, or Cynospastus by Aelianus, it is not easie to beleeve; nor is it naturally made out what is delivered of Tobias, that by the fume of a fishes liver, he put to flight Asmodeus. That they are afraid of the pentagle of Solomon, though so set forth with the body of man, as to touch and point out the five places where in our Saviour was wounded, I know not how to assent. If perhaps he hath fled from holy water, if he cares not to hear the sound of *Tetragammaton, if his eye delight not in the sign of the Crosse; and that sometimes he will seem to be charmed with words of holy Scripture, and to flye from the letter and dead verballity, who must only start at the life and animated interiors thereof: It may be feared they are but Parthian flights, Ambuscado retreats, and elusory tergiversations: Whereby to confirm our credulities, he will comply with the opinion of such powers, which in themselves have no activities. Whereof having once begot in our mindes an assured dependence, he makes us rely on powers which he but precariously obeies; and to desert those true and only charmes which hell cannot withstand.

Lastly, To lead us farther into darknesse, and quite to lose us in this maze of error, he would make men beleeve there is no such creature as himself, and that he is not only subject unto inferiour creatures but in the rank of nothing. Insinuating into mens mindes there is no devill at all, and contriveth accordingly, many waies to conceale or indubitate his existency. Wherein beside that he annihilates the blessed Angels and spirits in the rank of his creation; he begets a security of himself and a carelesse eye unto the last remunerations. And therefore hereto he inveigleth, not only Sadduces and such as retain unto the Church of God, but is also content that Epicurus, Democritus or any heathen should hold the same. And to this effect he maketh men beleeve that apparitions, and such as confirm his existence are either deceptions of sight, or melancholy depravements of phancy: Thus when he had not only appeared but spake unto Brutus; Cassius the Epicurian was ready at hand to perswade him, it was but a mistake in his weary imagination, and that indeed there were no such realities in nature. Thus he endeavours to propagate the unbelief of witches, whose concession infers his coexistency; by this means also he advanceth the opinion of totall death, and staggereth the immortality of the soul: for, such as deny there are spirits subsistent without bodies, will with more difficulty affirm the separated existence of their own.

Now

50.

S. Johns wort.

So called by
Magicians 3
triangles inter-
serted and
made of five
lines.

* Implying Je-
hovah which
in Hebrew
consisteth of
four letters.

Pentangle

vid. supra. 50.

Now to induce and bring about these falsities, he hath laboured to destroy the evidence of truth, that is the revealed verity and written word of God. To which intent he hath obtained with some to repudiate the books of Moses, others those of the Prophets, and some both to deny the Gospell and authentick histories of Christ; to reject that of John, and receive that of Judas; to disallow all, and erect another of Thomas. And when neither their corruption by Valentinus and Arrius, their mutilation by Marcion, Manes and Ebion could satisfie his design, he attempted the ruine and totall destruction thereof; as he sedulously endeavoured, by the power and subtilty of Julian, Maximinus and Dioclesian.

But the longevity of that piece, which hath so long escaped the common fate, and the providence of that Spirit which ever waketh over it, may at last discourage such attempts; and if not make doubtfull its mortality, at least indubitably declare; this is a stone too bigge for Satans mouth, and a bit indeed Oblivion cannot swallow.

And thus how strangely he possesseth us with errors may clearly be observed; deluding us into contradictory and inconsistent falsities; whilest he would make us beleeve, That there is no God. That there are many. That he himself is God. That he is lesse then Angels or Men. That he is nothing at all.

Nor hath he only by these wiles depraved the conception of the Creator, but with such riddles hath also entangled the Nature of our Redeemer. Some denying his humanity, and that he was one of the Angels, as Ebion; that the Father and Sonne were but one person, as Sabellius. That his body was phantasticall, as Manes, Basilides, Priscillian, Jovinianus; that he only passed through Mary, as Eutyches and Valentinus. Some denying his Divinity; that he was begotten of humane principles, and the seminall sonne of Joseph; as Carpocras, Symmachus, Photinus. That he was Seth the son of Adam, as the Sethians. That he was lesse then Angels as Cherinthus. That he was inferiour unto Melchisedech, as Theodotus. That he was not God, but God dwelt in him, as Nicolaus. And some embroiling them both. So did they which converted the Trinity into a quaternity, and affirmed two persons in Christ, as Paulus Samosatenus; that held he was man without a soul, and that the word performed that office in him, as Apollinaris. That he was both Son and Father, as Montanus. That Jesus suffered, but Christ remained impatible, as Cherinthus. Thus he endeavours to entangle truths: And when he cannot possibly destroy its substance he cunningly confounds its apprehensions; that from the inconsistent and contrary determinations thereof, consecratory impieties, and hopefull conclusions may arise, there's no such thing at all.

CHAP. XI.

A further Illustration.

Now although these waies of delusions, most Christians have escaped, yet are there many other whereunto we are daily betrayed; and these we meet with in obvious occurrents of the world, wherein he induceth us, to ascribe effects unto causes of no cognation; and distorting the order and theory of causes perpendicular to their effects, he draws them aside unto things whereto they runne parallel, and in their proper motions would never meet together.

Thus doth he sometime delude us in the conceits of Starres and Meteors, beside their allowable actions ascribing effects thereunto of independent causations. Thus hath he also made the ignorant sort beleeve that naturall effects

immedi-

*Religio Melin. 5,
and J. pag. 4.*

*His various opinions of
the nature of Christ*

immediatly and commonly proceed from supernaturall powers; and these he usually derives from heaven, his own principality the air, and meteors therein; which being of themselves, the effects of naturall and created causes, and such as upon a due conjunction of actives and passives, without a miracle must arise unto what they appear; are alwaies looked on by ignorant spectators as supernaturall spectacles, and made the causes or signes of most succeeding contingencies. To behold a Rain-bow in the night, is no prodigy unto a Philosopher. Then eclipses of Sun or Moon, nothing is more naturall. Yet with what superstition they have been beheld since the Tragedy of Niceas and his Army, many examples declare.

True it is, and we will not deny it, that although these being naturall productions from second and settled causes, we need not alway look upon them as the immediate hand of God, or of his ministring Spirits; yet doe they sometimes admit a respect therein; and even in their naturals, the indifferency of their existencies contemporised unto our actions, admits a farther consideration.

That two or three Suns or Moons appear in any mans life or reign, it is not worth the wonder. But that the same should fall out at a remarkable time, or point of some decisive action; that the contingency of its appearance should be confined unto that time; that those two should make but one line in the book of fate, and stand together in the great Ephemerides of God; beside the Philosophicall assignment of the cause, it may admit a Christian apprehension in the signality.

But above all he deceiveth us when we ascribe the effects of things unto evident and seeming causalities which arise from the secret and undiscerned action of himself. Thus hath he deluded many Nations in his Auguriall and Extispicious inventions, from casuall and uncontrived contingences divining events succeeding. Which Tuscan superstition seasing upon Rome hath since possessed all Europe. When Augustus found two gals in his sacrifice, the credulity of the City concluded a hope of peace with Anthony; and the conjunction of persons in choler with each other. Because Brutus and Cassius met a Blackmore, and Pompey had on a dark or sad coloured garment at Pharsalia; these were presages of their overthrow. Which notwithstanding are scarce Rhetoricall sequels; concluding metaphors from realities, and from conceptions metaphoricall inferring realities again.

Now these divinations concerning events, being in his power to force, contrive, prevent or further, they must generally fall out conformably unto his predictions. When Gracchus was slain, the same day the Chickens refused to come out of the coop: and Claudius Pulcher underwent the like successe, when he contemned the Tripudiary Augurations: They died not because the Pullets would not feed; but because the devil foresaw their death, he contrived that abstinence in them. So was there no naturall dependence of the event upon the signe, but an artificiall contrivance of the signe unto the event. An unexpected way of delusion, and whereby he more easily led away the incircumspection of their belief. Which fallacy he might excellently have acted before the death of Sael; which being in his power to foretell, was not beyond his ability to foreshew; and might have contrived signes thereof through all the creatures, which visibly confirmed by the event, had proved authentick unto those times, and advanced the Art ever after.

He deludeth us also by Philters, Ligatures, Charmes, ungrounded Amulets, Characters, and many superstitious waies in the cure of common diseases; seconding herein the expectation of men with events of his own contriving. Which while some unwilling to fall directly upon Magick, impute unto the power of imagination, or the efficacy of hidden causes, he obtains a bloudy advantage;

G

for

The danger and delusion that is in cures by Charmes Amulets, Ligatures, Characters, &c.

Ord. 229.

for thereby he begets not only a false opinion, but such as leadeth the open way of destruction. In maladies admitting naturall reliefs, making men rely on remedies, neither of reall operation in themselves, nor more then seeming efficacy in his concurrence. Which whensoever he pleaseth to withdraw, they stand naked unto the mischief of their diseases; and revenge the contempt of the medicines of the earth which God hath created for them. And therefore when neither miracle is expected, nor connexion of cause unto effect from naturall grounds concluded; however it be sometime successfull, it cannot be safe to rely on such practises, and desert the known and authentick provisions of God. In which rank of remedies, if nothing in our knowledge or their proper power be able to relieve us, we must with patience submit unto that restraint, and expect the will of the Refrainer.

30

Now in these effects although he seem oft times to imitate, yet doth he concur unto their productions in a different way from that spirit which sometime in naturall means produceth effects above Nature. For whether he worketh by causes which have relation or none unto the effect, he maketh it out by secret and undiscerned waies of Nature. So when Caius the blinde, in the reign of Antoninus, was commanded to passe from the right side of the Altar unto the left, to lay five fingers of one hand thereon, and five of the other upon his eyes; although the cure succeeded and all the people wondered, there was not any thing in the action which did produce it, nor any thing in his power that could enable it thereunto. So for the same infirmity, when Aper was counselled by him to make a collyrium or ocular medicine with the blood of a white Cock, and hony, and apply it to his eyes for three daies: When Julian for his spitting of blood, was cured by hony and pine Nuts taken from his Altar: When Lucius for the pain in his side, applyed thereto the ashes from his Altar with wine; although the remedies were somewhat rationall, and not without a naturall vertue unto such intentions, can we beleieve that by their proper faculties they produced these effects?

But the effects of powers Divine flow from another operation; who either proceeding by visible means, or not, unto visible effects, is able to conjoin them by his cooperation. And therefore those sensible waies which seem of indifferent natures, are not idle ceremonies, but may be causes by his command, and arise unto productions beyond their regular activities. If Nahaman the Syrian had washed in Jordan without the command of the Prophet, I beleieve he had been cleansed by them no more then by the waters of Damascus. I doubt if any beside Elisba had cast in salt, the waters of Jericho had not been made wholesome. I know that a decoction of wilde gourd or Colocynthis (though somewhat qualified) will not from every hand be dulcified unto aliment by an addition of flower or meale. There was some naturall vertue in the plaster of figs applied unto Ezechias; we finde that gall is very mundificative, and was a proper medicine to clear the eyes of Tobit; which carrying in themselves some action of their own, they were additionally promoted by that power, which can extend their natures unto the production of effects beyond their created efficiencies. And thus may he operate also from causes of no power unto their visible effects; for he that hath determined their actions unto certain effects, hath not so emptied his own, but that he can make them effectually unto any other.

Again, Although his delusions run highest in points of practice, whose errors draw on offensive or penall enormities, yet doth he also deal in points of speculation, and things whose knowledge terminates in themselves; whose cognition although it seems indifferent, and therefore its aberration directly to condemn no man; yet doth he hereby preparatively dispose us unto errors, and deductively deject us into destructive conclusions.

149.

That the Sun, Moon and Stars are living creatures, endued with soul and life, seems

seems an innocent error, and a harmlesse digression from truth; yet hereby he confirmed their idolatry, and made it more plausibly embraced. For wisely mistrusting that reasonable spirits would never firmly be lost in the adoration of things inanimate, and in the lowest form of Nature; he begat an opinion that they were living creatures, and could not decay for ever.

That spirits are corporeall, seems at first view a conceit derogative unto himself, and such as he should rather labour to overthrow; yet hereby he establissheth the doctrine of Lustrations, Amulets and Charmes, as we have declared before.

That there are two principles of all things, one good, and another evil; from the one proceeding vertue, love, light and unity; from the other division, discord, darknesse and deformity, was the speculation of Pythagoras, Empedocles, and many ancient Philosophers, and was no more then Oromasdes and Arimanius of Zoroaster; yet hereby he obtained the advantage of Adoration, and as the terrible principle became more dreadfull then his Maker; and therefore not willing to let it fall, he furthered the conceit in succeeding Ages, and raised the faction of Manes to maintain it.

That the feminine sex have no generative emission, affording rather place then principles of conception, was Aristotles opinion of old, maintained still by some, and will be countenanced by him for ever. For hereby he disparageth the fruit of the Virgin, frustrateth the fundamentall Prophecie, nor can the seed of the woman then break the head of the Serpent.

Nor doth he only sport in speculative errors, which are of consequent impieties; but the unquietnesse of his malice hunts after simple lapses, and such whose falsities doe only condemn our understandings. Thus if Xenophanes will say there is another world in the Moon; If Heraclitus with his adherents will hold the Sunne is no bigger then it appeareth; If Anaxagoras affirm that Snow is black; If any other opinion there are no Antipodes, or that the Stars doe fall, he shall not want herein the applause or advocacy of Satan. For maligning the tranquillity of truth, he delighteth to trouble its streams; and being a professed enemy unto God (who is truth it self) he promoteth any error as derogatory to his nature; and revengeth himself in every deformity from truth. If therefore at any time he speak or practise truth, it is upon design, and a subtile inversion of the precept of God, to doe good that evil may come of it. And therefore sometimes we meet with wholesome doctrines from hell; *Nosce te ipsum*, the Motto of Delphos, was a good precept in morality; That a just man is beloved of the gods, an uncontrollable verity. 'Twas a good deed, though not well done, which he wrought by Vespasian, when by the touch of his foot he restored a lame man, and by the stroak of his hand another that was blinde; but the intention hereof drived at his own advantage; for hereby he not only confirmed the opinion of his power with the people, but his integrity with Princes; in whose power he knew it lay to overthrow his Oracles, and silence the practice of his delusions.

But indeed of such a diffused nature, and so large is the Empire of Truth, that it hath place within the walls of hell, and the devils themselves are daily forced to practise it; not only as being true themselves in a Metaphysicall verity, that is, as having their essence conformable unto the Intellect of their maker, but making use of Morall and Logically verities; that is, whether in the conformity of words unto things, or things unto their own conceptions; they practise truth in common among themselves. For although without speech they intuitively conceive each other, yet doe their apprehensions proceed through realities; and they conceive each other by species, which carry the true and proper notions of things conceived. And so also in Morall verities, although

How spirits understand one another.

they deceive us, they lie ^{not} unto each other; as well understanding that all community is continued by truth, and that of hell cannot consist without it.

To come yet nearer the point and draw into a sharper angle; They doe not only speak and practise truth, but may be said well-wishers hereunto, and in some sense doe really desire its enlargement. For many things which in themselves are false, they doe desire were true; He cannot but wish he were as he professeth; that he had the knowledge of future events; were it in his power, the Jews should be in the right, and the Messias yet to come. Could his desires effect it, the opinion of Aristotle should be true, the world should have no end, but be as immortall as himself. For thereby he might evade the accomplishment of those afflictions, he now but gradually endureth; for comparatively unto those flames, he is but yet in Balneo, then begins his *Ignis Rota*, and terrible fire, which will determine his disputed subtilty, and hazard his immortality.

But to speak strictly, he is in these wishes no promoter of verity, but if considered some waies injurious unto truth; for (besides that if things were true, which now are false, it were but an exchange of their natures, and things must then be false, which now are true) the settled and determined order of the world would be perverted, and that course of things disturbed, which seemed best unto the immutable contriver. For whilst they murmur against the present disposure of things, regulating determined realities unto their private optations, they rest not in their established natures; but unwishing their unalterable verities, doe tacitely desire in them a difformity from the primitive rule, and the Idea of that minde that formed all things best. And thus he offended truth even in his first attempt; For not content with his created nature, and thinking it too low to be the highest creature of God, he offended the ordainer, not only in the attempt, but in the wish and simple volition thereof.

How the devils
sell.

THE

THE SECOND BOOK:

Of sundry popular Tenets concerning Minerall, and vegetable bodies, generally held for truth; which examined, prove either false, or dubious.

CHAP. I.

Of Cryſtall.

Hereof the common opinion hath been, and ſtill remaineth amongſt us, that Cryſtall is nothing elſe, but Ice or Snow concreated, and by duration of time, congealed beyond liquation. Of which aſſertion, if preſcription of time, and numeroſity of Aſſertors, were a ſufficient demonſtration, we might ſit down herein, as an unqueſtionable truth; nor ſhould there need *ulterior* diſquiſition. For few opinions there are, which have found ſo many friends, or been ſo popularly received, through all profeſſions and ages. And firſt Pliny is poſitively in this opinion: *Cryſtallus fit gelu vehementius concreto*: the ſame is followed by Seneca, Elegantly deſcribed by Claudian, not denied by Scaliger, ſome way affirmed by Albertus, Braſavolus, and directly by many others. The venerable Fathers of the Church have alſo aſſented hereto; As Baſil in his Hexameron, Iſodore in his Etymologies, and not only Auſtin a Latine Father, but Gregory the great, and Jerom upon occaſion of that terme expreſſed in the firſt of Ezekiel.

All which notwithstanding, upon a ſtrict enquiry, we finde the matter controvertible, and with much more reaſon denied then is as yet affirmed. For firſt, though many have paſſed it over with eaſie affirmatives; yet are there alſo many Authors that deny it, and the exacteſt Mineralogists have rejected it. Diodorus in his eleventh book denieth it, (If Cryſtall be there taken in its proper acception, as Rhodiginus hath uſed it, and not for a Diamond, as Salmatius hath expounded it,) for in that place he affirmeth; *Cryſtallum eſſe lapidem ex aqua pura concretum, non tamen frigore ſed divini caloris vi*. Solinus who tranſcribed Pliny, and therefore in almoſt all ſubſcribed unto him, hath in this point diſſented from him. *Putant quidam glaciem coire, & in Cryſtallum corporari, ſed fruſtrâ*. Mathiolus in his Comment upon Dioſcorides, hath with confidence rejected it. The ſame hath been performed by Agricola *de Natura foſſilium*; by Cardan, Boetius *de Boot*, Cæſius Bernardus, Sennertus, and many more.

That Cryſtall is
not Ice or Snow
congealed,

Now besides authority against it, there may be many reasons deduced from their severall differences which seem to overthrow it. And first, a difference is probable in their concretion. For if Crystall be a stone (as in the number thereof it is confessedly received,) it is not immediatly concreted by the efficacy of cold, but rather by a Minerall spirit, and lapidificall principles of its own; and therefore while it lay *in solutis principiis*, and remained in a fluid body, it was a subject very unapt for proper congelation; for Minerall spirits, doe generally resist and scarce submit thereto. So we observe that many waters and springs will never freeze, and many parts in rivers and lakes, where there are Minerall eruptions, will still persist without congelation; as we also observe in *Aqua fortis*, or any Minerall solution, either of Vitrioll, Alum, Saltpeter, Ammoniac or Tartar; which although to some degree exhaled, and placed in cold conservatories, will CrySTALLIZE and shoot into white and glaucious bodies; yet is not this a congelation primarily effected by cold, but an intrinsecall induration from themselves; and a retreat into their proper solidities, which were absorbed by the liquour, and lost in a full imbibition thereof before. And so also when wood and many other bodies doe petrifie, either by the sea, other waters, or earths abounding in such spirits; we doe not usually ascribe their induration to cold, but rather unto salinous spirits, concretive juices, and causes circumjacent, which doe assimilate all bodies not indisposed for their impressions.

But Ice is water congealed by the frigidity of the aire; whereby it acquirith no new form, but rather a consistence or determination of its diffuency, and amitteth not its essence, but condition of fluidity. Neither doth there any thing properly congeliate but water, or watery humidity; for the determination of quick-silver is properly fixation, that of milk coagulation, and that of oyl and unctuous bodies only, incrassation; And therefore Aristotle makes a triall of the fertility of humane seed, from the experiment of congelation; for That, saith he, which is not watery and improlificall will not congeliate; which perhaps must not be taken strictly, but in the germe and spirited particles: for Eggs I observe will freeze, in the albuginous part thereof. And upon this ground Paracelsus in his Archidoxis, extracteth the magistery of wine; after four moneths digestion in horsedung, exposing it unto the extremity of cold; whereby the aqueous parts will freeze, but the Spirit retire and be found uncongealed in the center.

But whether this congelation be simply made by cold, or also by cooperation of any nitrous coagulum, or spirit of salt the principle of concretion; whereby we observe that Ice may be made with Salt and Snowe by the fire side; as is also observable from Ice made by Saltpeter and water, duly mixed and strongly agitated at any time of the year; were a very considerable enquiry. For thereby we might cleer the generation of Snow, haile and hoary frosts, the piercing qualities of some windes, the coldnesse of cavernes and some cells. We might more sensibly conceive how Saltpeter fixeth the flying spirits of Minerals in chymicall preparations; and how by this congealing quality it becomes an usefull medicine in Fevers.

Again, The difference of their concretion is collectible from their dissolution; which being many waies performable in Ice, is few waies effected in Crystall. Now the causes of liquation are contrary to those of concretion; and as the atoms and indivisible parcels are united, so are they in an opposite way disjoined. That which is concreted by exsiccation or expreffion of humidity, will be resolved by humectation, as earth, dirt and clay; that which is coagulated by a fiery ficcidity, will suffer colliquation from an aqueous humidity, as salt and sugar, which are easily dissoluble in water, but not with-

out

Aristotles way of proving
the fertility of humane seed
another way 165.

How to make Ice
at any time of the
year.

out difficulty in oyle, and well rectified spirits of wine. That which is concreted by cold, will dissolve by a moist heat, if it consist of watery parts, as Gums, Arabick, Tragacanth, Ammoniac and others; in an ayrie heat or oyle, as all resinous bodies, Turpentine, Pitch and Frankincense; in both as gummy resinous bodies, Mastick, Camphire and Storax; in neither, as neutralls and bodies anomalous hereto, as Bdellium, Myrrhe and others. Some by a violent dry heat, as mettalls; which although corrodible by waters, yet will they not suffer a liquation from the powerfulest heat, communicable unto that element. Some will dissolve by this heat although their ingredients be earthy, as Glasfe, whose materials are fine Sand, and the ashes of Chali or Fearn; and so will Salt runne with fire, although it be concreted by heat. And this way may be effected a liquation in Cryfall, but not without some difficulty; that is, calcination or reducing it by Art into a subtile powder; by which way and a vitreous commixture, Glasses are sometime made hereof, and it becomes the chiefeft ground for artificall and fictitious gemmes; but the same way of solution is common also unto many Stones; and not only Berylls and Cornelians, but Flints and Pebbles, are subject unto fusion, and will runne like Glasfe in fire.

But Ice will dissolve in any way of heat; for it will dissolve with fire; it will colligate in water, or warm oyle; nor doth it only submit unto an actual heat, but not endure the potentiall calidity of many waters; for it will presently dissolve in cold *Aqua fortis*, sp. of Vitrioll, Salt or Tartar; nor will it long continue its fixation in spirits of wine, as may be observed in Ice injected therein.

Again, The concretion of Ice will not endure a dry attrition without liquation; for if it be rubbed long with a cloth, it melteth. But Cryfall will calefie unto electricity; that is, a power to attract straws or light bodies, and convert the needle freely placed. Which is a declaement of very different parts: wherein we shall not enlarge, as having discoursed concerning such bodies in the Chap. of Electricks.

They are differenced by supernatation or floating upon water; for Cryfall will sink in water, as carrying in its own bulk a greater ponderosity, then the space in any water it doth occupy; and will therefore only swim in molten mettall and Quicksilver. But Ice will swim in water of what thinnesse soever; and though it sink in oyle, will float in spirits of wine or *Aqua vita*. And therefore it may swim in water, not only as being water it self, and in its proper place, but perhaps as weighing no more then the water it possesseth. And therefore as it will not sink unto the bottom, so will it neither float above like lighter bodies, but being near in weight, lie superficially or almost horizontally unto it. And therefore also an Ice or congelation of Salt or Sugar, although it descend not unto the bottom, yet will it abate, and decline below the surface in thin water, but very sensibly in spirits of wine. For Ice although it seemeth as transparent and compact as Cryfall, yet is it short in either; for its attomes are not concreted into continuity, which doth diminish its translucency; it is also full of spumes and bubbles, which may abate its gravity. And therefore waters frozen in pans, and open glasses, after their dissolution doe commonly leave a froth and spume upon them; which are caused by the airy parts diffused in the congealeable mixture: which uniting themselves and finding no passage at the surface, doe elevate the masse, and make the liquor take up a greater place then before: as may be observed in glasses filled with water, which being frozen will seem to swell above the brim. So that if in this condensation any one affirmeth there is also some rarefaction, experience may assert it.

They

The original ingredients of glass.

53.

Reason will
of sinking &
swimming of
bodies in water.
bid. 315. *

What bodies only
will strike actively
fire, and why.

They are distinguished in substance of parts and the accidents thereof, that is, in colour and figure; for Ice is a similiary body, and homogeneous concretion, whose materiall is properly water, and but accidentally exceeding the simplicity of that element. But the body of CrySTALL is mixed; its ingredients many, and sensibly containeth those principles into which mixt bodies are reduced. For beside the spirit and mercuriall principle, it containeth a sulphur or inflamable part, and that in no small quantity; for upon collision with steel, it will actively send forth its sparks not much inferiour unto a flint. Now such bodies only strike fire as have a sulphur or ignitable parts within them. For these scintillations are not the accension of the ayre, upon the collision of two hard bodies, but rather the inflamable effluencies discharged from the bodies collided. For Diamonds, Marbles, Heliotropes and Agaths, though hard bodies, will not readily strike fire with a steel, much lesse with one another; nor a flint easily with a steel, if they both be wet; for then the sparks are quenched in their eruption.

The Physicall causes
of liquation or
melting of Metals,
&c.

It containeth also a salt, and that in some plenty, which may occasion its fragility, as is also observable in Corall. This by the art of Chymistry is separable, unto the operations whereof it is liable, with other concretions; as calcination, reverberation, sublimation, distillation: And in the preparation of CrySTALL, Paracelsus hath made a rule for that of Gemms, as he declareth in his first *de preparationibus*. Briefly, it consisteth of such parts so far from an Ice dissolution, that powerfull menstruums are made for its emollition; whereby it may receive the tincture of minerals, and so resemble Gemms, as Boetius hath declared in the distillation of Urine, spirits of wine and turpentine; and is not only triturable, and reduceable into powder, by contrition, but will subsist in a violent fire, and endure a vitrification. Whereby are testified its earthy and fixed parts. For vitrification is the last work of fire, and a fusion of the salt and earth; which are the fixed elements of the composition; wherein the fusible salt draws the earth and infusible part into one continuum; and therefore ashes will not runne from whence the salt is drawn, as bone ashes prepared for the Test of Mettals. Common fusion in Metals is also made by a violent heat, acting upon the volatile and fixed, the dry and humid parts of those bodies; which notwithstanding are so united, that upon attenuation from heat, the humid parts will not fly away, but draw the fixed ones into fluor with them. Ordinary liquation in wax and oily bodies is made by a gentler heat, where the oyl and salt, the fixed and fluid principles will not easily separate: All which, whether by virtification, fusion or liquation, being forced into fluent consistencies, doe naturally regresse into their former solidities. Whereas the melting of Ice is a simple resolution, or return from solid to fluid parts, wherein it naturally resteth.

As for colour, although CrySTALL in his pellucid body seems to have none at all, yet in its reduction into powder, it hath a vaile and shadow of blew; and in its courser peeces, is of a sadder hue then the powder of Venice glasse; and this complexion it will maintain although it long endure the fire. Which notwithstanding needs not move us unto wonder; for vitrified and pellucid bodies, are of a clearer complexion in their continuities, then in their powders and Atomicall divisions. So *Stibium* or glasse of Antimony, appears sallow in glasse, but in its powder yellow; so painted glasse of a sanguine red will not ascend in powder above a murrey.

As for the figure of CrySTALL (which is very strange, and forced Pliny to despair of resolution) it is for the most part hexagonall or six-cornerd; being built upon a confused matter, from whence as it were from a root angular figures arise, even as in the Amethyft and Basaltes; which regular figuration hath

hath made some opinion, it hath not its determination from circumspection, or as conforming unto contiguities, but rather from a seminall root, and formative principle of its own; even as we observe in severall other concretions. So the stones which are sometime found in the gall of a man, are most triangular, and pyramidall, although the figure of that part seems not to cooperate thereto. So the *Asteria* or *Lapis Stellaris*, hath on it the figure of a Starre; so *Lapis Judaicus*, hath circular lines in length all down its body, and equidistant, as though they had been turned by Art. So that we call a Fayrie stone, and is often found in gravell pits amongst us, being of an hemisphericall figure; hath five double lines arising from the center of its basis, which if no accretion distract them, doe commonly concur and meet in the pole thereof. The figures are regular in many other stones, as in the Belemnites, *Lapis anguinus*, *Cornu Ammonis*, and many more; as by those which have not the experience hereof may be observed in their figures expressed by Mineralogists. But Ice receiveth its figure according unto the surface wherein it concreteth, or the circumambieny which conformeth it. So it is plain upon the surface of water; but round in Hayl (which is also a glaciation,) and figured in its guttulous descent from the ayre, and so growing greater or lesser according unto the accretion or pluvius aggelation about the mother and fundamentall Atomes thereof; which seems to be some feathery particle of Snowe; although Snowe it self be sexangular, or at least of a starry and many-pointed figure.

Which seemeth
to be Echi-
nites decima
Aldrovandi.
Musæi Metal-
lici. lib. 4.

Haile.

They are also differenced in the places of their generation; for though CrySTALL be found in cold countries, and where Ice remaineth long, and the ayre exceedeth in cold, yet is it also found in regions, where Ice is seldom seen or soon dissolved; as Pliny and Agricola relate of Cyprus, Caramania and an Island in the Red-sea; it is also found in the veins of Mineralls, in rocks, and sometime in common earth. But as for Ice, it will not concrete but in the approachment of the ayre, as we have made triall in glasses of water, covered an inch with oyle, which will not easily freeze in the hardest frosts of our climate; for water concreteth first in its surface, and so congelates downward; and so will it doe although it be exposed in the coldest mettall of lead; which well accordeth with that expression, *Iob* 38. The waters are hid as with a stone, and the face of the deep is frozen. But whether water which hath been boiled or heated doth sooner receive this congelation, as commonly is delivered, we rest in the experiment of Cabeus; who hath rejected the same in his excellent discourse of Meteors.

water congelates downward.

They have contrary qualities elementall, and uses medicinall; for Ice is cold and moist, of the quality of water: but CrySTALL is cold and dry, according to the condition of earth; the use of Ice is condemned by most Physicians; that of CrySTALL commended by many. For although Dioscorides and Galen, have left no mention thereof; yet hath Mathiolus, Agricola and many commended it in dysenteries and fluxes; all for the increase of milk; most Chymists for the stone, and some as Brassavolus and Boetius, as an antidote against poison. Which occult and specificall operations, are not expectible from Ice; for being but water congealed, it can never make good such qualities; nor will it reasonably admit of secret proprieties, which are the affections of forms, and compositions at distance from their elements.

Having thus declared what CrySTALL is not, it may afford some satisfaction to manifest what it is. To deliver therefore what with the judgement of approved Authors, and best reason consisteth; It is a minerall body in the difference of stones, and reduced by some unto that subdivision, which comprehendeth gemmes; transparent and resembling glasse or Ice, made of a lentous

What CrySTALL is.

percolation of earth, drawn from the most pure and limpid juice thereof; owing unto the coldnesse of the earth some concurrence or coadjuvancy, but not immediate determination and efficiency; which are wrought by the hand of its concreative spirit, the seeds of petrification and Gorgon within it self. As we may conceive in stones and gemmes, in Diamonds, Berils, Saphires and the like; whose generation we cannot with satisfaction confine unto the remote activity of the Sun, or the common operation of coldnesse in the earth; but may more safely refer it unto a lapidifical succity, and principle which determines prepared materials unto specificall concretions. And therefore I fear we commonly consider subterraneities, not in contemplations sufficiently respective unto the creation. For though Moses have left no mention of minerals, nor made any other description then futes unto the apparent and visible creation; yet is there unquestionably, a very large Classis of creatures in the earth, farre above the condition of elementarity. And although not in a distinct and indisputable way of vivency, or answering in all points the properties or affections of plants, yet in inferiour and descending constitutions, they doe like these contain specificall distinctions, and are determined by feminalities; that is, created and defined seeds committed unto the earth from the beginning. Wherein although they attain not the indubitable requisites of Animation, yet have they a neer affinity thereto. And though we want a proper name and expressive appellation, yet are they not to be closed up in the generall name of concretions; or lightly passed over as only Elementary and Subterraneous mixtions.

Exact continuity
of parts a cause of
transparency in
things; and why.

The principle and most gemmary affection is its Tralucency: as for irradiancy or sparkling which is found in many gemmes, it is not discoverable in this; for it cometh short of their compactnesse and durity: and therefore requireth not the Emery, as the Saphire, Granate and Topaz, but will receive impression from steel, more easily then the Turchois. As for its diaphanity or perspicuity, it enjoyeth that most eminently; and the reason thereof is its continuity; as having its earthly and salinous parts so exactly resolved, that its body is left imporous and not discreted by atomically terminations. For, that continuity of parts is the cause of perspicuity, it is made perspicuous by two waies of experiment; that is, either in effecting transparency in those bodies which were not so before, or at least far short of the additionall degree: So Snow becomes transparent upon liquation; so horns and bodies resolvable into continued parts or gelly: The like is observable in oyled paper, wherein the interstitiall divisions being continued by the accession of oyle, it becometh more transparent, and admits the visible raies with lesse umbrosity. Or else the same is effected by rendring those bodies opacous, which were before pellucid and perspicuous. So glasse which was before diaphanous, being by powder reduced into multiplicity of superficies, becomes an opacous body, and will not transmit the light: so it is in CrySTALL powdered, and so it is also before; for if it be made hot in a crucible, and presently projected upon water, it will grow dim, and abate its diaphanity; for the water entering the body, begets a division of parts, and a termination of Atoms united before unto continuity.

The ground of this opinion might be, first the conclusions of some men from experience; for as much as CrySTALL is found sometimes in rocks, and in some places not much unlike the stirious or stillicidious dependencies of Ice. Which notwithstanding may happen either in places which have been forsaken or left bare by the earth; or may be petrifications, or Minerall indurations, like other gemmes, proceeding from percolations of the earth disposed unto such concretions.

The

The second and most common ground is from the name *Crystallus*, whereby in Greek, both Ice and Crystall are expressed; which many not duly considering, have from their community of name, conceived a community of nature, and what was ascribed unto the one, not unfitly appliable unto the other. But this is a fallacy of *Æquivocation*, from a society in name inferring an Identity in nature. By this fallacy was he deceived that drank *Aqua fortis* for strong water: By this are they deluded, who conceive *sperma Cæti* (which is a bituminous superfluity on the sea) to be the spawn of the Whale; Or take *sanguis draconis* (which is the gumme of a tree,) to be the blood of a Dragon. By the same Logick we may inferre, the Crystalline humour of the eye, or rather the Crystalline heaven above, to be of the substance of Crystall here below; Or that God sendeth down Crystall, because it is delivered in the vulgar translation, Psal. 47. *Mittit Crystallum suum sicut Buccellas*: which translation although it literally expresse the Septuagint; yet is there no more meant thereby, then what our translation in plain English expresseth; that is, he casteth forth his Ice like morsels, or what Tremellius and Junius as clearly deliver, *Dejicit gelu suum sicut frusta, coram frigore ejus quis consistet?* which proper and Latine expressions, had they been observed in ancient translations, elder Expositors had not been misguided by the Synonymy; nor had they afforded occasion unto Austin, the Glosse, Lyranus and many others, to have taken up the common conceit, and spoke of this text conformably unto the opinion rejected.

Agreement in name.

CHAP. II.

Concerning the Loadstone.

Of things particularly spoken thereof evidently or probably true. Of things generally beleeved, or particularly delivered, manifestly or probably false. In the first of the Magneticall vertue of the earth, of the four motions of the stone, that is, its Verticity or Direction, its Attraction or Coition, its Declination, its Variation, and also of its Antiquity. In the second a rejection of sundry opinions and relations thereof, Naturall, Medicall, Historicall, Magicall.

And first we conceive the earth to be a Magneticall body. A Magneticall body, we term not only that which hath a power attractive; but that which seated in a convenient medium naturally disposeth it self to one invincible and fixed situation. And such a Magneticall vertue we conceive to be in the Globe of the earth; whereby as unto its naturall points and proper terms it disposeth it self unto the poles; being so framed, constituted and ordered unto these points, that those parts which are now at the poles, would not naturally abide under the *Æquator*; nor *Green-land* remain in the place of *Magellanica*. And if the whole earth were violently removed, yet would it not forgoe its primitive points; nor pitch in the East or West, but return unto its polary position again. For though by compactnesse or gravity it may acquire the lowest place, and become the center of the universe, yet that it makes good that point, not varying at all by the accession of bodies upon, or secession thereof, from its surface, perturbing the equilibration of either Hemisphere (whereby the altitude of the starres might vary) or that it strictly maintains the north and southern points; that neither upon the mo-

How the earth is a Magneticall body.

The foundation
of the earths
stability,

tions of the heavens, ayre and windes without, large eruptions and division of parts within, its polary parts should never incline or veere unto the *Æquator* (whereby the latitude of places should also vary) it cannot so well be salved from gravity as a Magneticall verticity. This is probably that foundation the wisdom of the Creator hath laid unto the earth; in this sense we may more nearly apprehend, and sensibly make out the expressions of holy Scripture, as that of *Psal. 93. 1. Firmavit orbem terræ qui non commovebitur*, he hath made the round world so sure that it cannot be moved: as when it is said by *Job*, *Extendit Aquilonem super vacuo*, &c. He stretcheth forth the North upon the empty place, and hangeth the earth upon nothing. And this is the most probable answer unto that great question, *Job 38*. Whereupon are the foundations of the earth fastened, or who laid the corner stone thereof? Had they been acquainted with this principle, *Anaxagoras*, *Socrates* and *Democritus* had better made out the ground of this stability: *Xenophanes* had not been fain to say the earth had no bottome; and *Thales Milesius* to make it swim in water.

The magneticall
vertue of the
earth diffused
extra se and com-
municated to bo-
dies adjacent.

Nor is the vigour of this great body included only in its self, or circumfenced by its surface, but diffused at indeterminate distances through the ayre, water and all bodies circumjacent. Exciting and impregnating Magneticall bodies within its surface or without it; and performing in a secret and invisible way what we evidently behold effected by the Loadstone. For these effluxions penetrate all bodies, and like the species of visible objects are ever ready in the medium, and lay hold on all bodies proportionate or capable of their action; those bodies likewise being of a congenerous nature doe readily receive the impressions of their motor; and if not fettered by their gravity, conform themselves to situations, wherein they best unite unto their Animator. And this will sufficiently appear from the observations that are to follow, which can no better way be made out then this we speak of, the Magneticall vigour of the earth. Now whether these effluvia do flye by striated Atomes and winding particles as *Renatus des Cartes* conceiveth, or glide by streams attracted from either pole and Hemisphere of the earth unto the *Æquator*, as *Sir Kenelme Digby* excellently declareth, it takes not away this vertue of the earth; but more distinctly sets down the gifts and progresse thereof; and are conceits of eminent use to salve Magneticall phenomena's. And as in Astronomy those hypotheses though never so strange are best esteemed which best doe salve apparencies; so surely in Philosophy those principles (though seeming monstrous) may with advantage be embraced, which best confirm experiment, and afford the readiest reason of observation. And truly the doctrine of effluxions, their penetrating natures, their invisible paths, and unsuspected effects, are very considerable; for besides this Magneticall one of the earth, severall effusions there may be from divers other bodies, which invisibly act their parts at any time, and perhaps through any medium; a part of Philosophy but yet in discovery, and will I fear prove the last leaf to be turned over in the book of Nature.

Apparencies,
observations,

The doctrine of
effluxions ac-
knowledged by
the Author.

Point to the
North.
Point to the
South,

First, Therefore true it is, and confirmable by every experiment, that Steel and good Iron never excited by the Loadstone, discover in themselves a verticity; that is, a directive or polary faculty; whereby, conveniently placed, they doe septentrionate at one extream, and Australize at another; this is manifestible in long and thin plates of Steel perforated in the middle and equilibrated; or by an easier way in long wires equiponderate with untwisted Silk and soft wax; for in this manner pendulous, they will conform themselves Meridionally; directing one extream unto the North, another to the South. The same is also manifest in Steel wires thrust through little spheres

or

or globes of Cork and floated on the water; or in naked needles gently let fall thereon; for so disposed they will not rest untill they have found out the Meridian, and as near as they can lye parallel unto the axis of the earth: Sometimes the eye, sometimes the point Northward in divers needles, but the same point alwaies in most; Conforming themselves unto the whole earth, in the same manner as they doe unto every Loadstone; For if a needle untoucht be hanged above a Loadstone, it will convert into a parallel position thereto; for in this situation it can best receive its verticity and be excited proportionably at both extrems. Now this direction proceeds not primitively from themselves, but is derivative and contracted from the Magneticall effluxions of the earth; which they have winded in their hammering and formation, or else by long continuance in one position, as we shall declare hereafter.

It is likewise true what is delivered of Irons heated in the fire, that they contract a verticity in their refrigeration; for heated red hot and cooled in the meridian from North to South, they presently contract a polary power, and being poyssed in ayre or water convert that part unto the North which respected that point in its refrigeration; so that if they had no sensible verticity before, it may be acquired by this way; or if they had any, it might be exchanged by contrary position in the cooling. For by the fire they omit not only many drossie and scorious parts, but whatsoever they had received either from the earth or Loadstone; and so being naked and despoiled of all verticity, the Magneticall Atomes invade their bodies with more effect and agility.

Neither is it only true what Gilbertus first observed, that Irons refrigerated North and South acquire a Directive faculty; but if they be cooled upright and perpendicularly they will also obtain the same. That part which is cooled toward the North on this side the Æquator, converting it self unto the North, and attracting the South point of the needle: the other and highest extremum respecting the South, and attracting the Northern, according unto the laws Magneticall: For (what must be observed) contrary poles or faces attract each other, as the North the South; and the like decline each other, as the North the North. Now on this side of the Æquator, that extremum which is next the earth is animated unto the North, and the contrary unto the South; so that in Coition it applies it self quite oppositely, the Coition or attraction being contrary to the Verticity or Direction. Contrary, if we speak according unto common use, yet alike, if we conceive the vertue of the North pole to diffuse it self and open at the South, and the South at the North again.

This polarity from refrigeration upon extremity and in defect of a Loadstone might serve to invigorate and touch a needle any where; and this, allowing variation, is also the readiest way at any season to discover the North or South; and surely farre more certain then what is affirmed of the grains and circles in trees, or the figure in the root of Fern. For if we erect a red hot wire untill it coole, then hang it up with wax and untwisted Silk, where the lower end and that which cooled next the earth doth rest, that is the Northern point; and this we affirm will still be true, whether it be cooled in the ayre or extinguished in water, oyle of vitrioll, *Aqua fortis*, or Quicksilver. And this is also evidenced in culinary utensils and Irons that often feel the force of fire, as tongs, fireshovels, prongs and Andirons; all which acquire a Magneticall and polary condition, and being suspended, convert their lower extrems unto the North; with the same attracting the Southern point of the needle. For easier experiment if we place a needle touched at the foot

Some conceive that the figure of the tree or spread-eagle in the root of Brake or Fern stands North and South; but not truly.

of tongs or andirons, it will obvert or turn aside its lillie or North point, and conform its cuspis or South extream unto the andiron. The like verticity though more obscurely is also contracted by bricks and tiles, as we have made triall in some taken out of the backs of chimneys. Now to contract this Direction, there needs not a totall ignition, nor is it necessary the Irons should be red hot all over. For if a wire be heated only at one end, according as that end is cooled upward or downward, it respectively acquires a verticity; as we have declared in wires totally candent. Nor is it absolutely requisite they should be cooled perpendicularly, or strictly lye in the meridian; for whether they be refrigerated inclinatoryly or somewhat Equinoxially, that is toward the Eastern or Western points; though in a lesser degree, they discover some verticity.

Loofeth.

Nor is this only true in Irons but in the Loadstone it self. For if a Loadstone be made red hot, it amits the magneticall vigour it had before in it self, and acquires another from the earth in its refrigeration, for that part which cooleth toward the earth will acquire the respect of the North, and attract the Southern point or cuspis of the Needle. The experiment hereof we made in a Loadstone of a parallelogram or long square figure; wherein only inverting the extremes as it came out of the fire, we altered the poles or faces thereof at pleasure.

It is also true what is delivered of the Direction and coition of Irons, that they contract a verticity by long and continued position, that is, not only being placed from North to South, and lying in the meridian, but respecting the Zenith and perpendicular unto the center of the earth; as is most manifest in barres of windowes, casements, hinges and the like. For if we present the Needle unto their lower extremes, it wheels about and turns its Southern point unto them. The same condition in long time doe bricks contract which are placed in walls; and therefore it may be a fallible way to finde out the meridian by placing the Needle on a wall; for some bricks therein by a long and continued position, are often magnetically enabled to distract the polarity of the Needle. And therefore those Irons, which are said to have been converted into Loadstones; whether they were reall conversions, or only attractive augmentations, might be much promoted by this position: as the Iron crosse of an hundred weight upon the Church of S^t John in Ariminum, or that Loadston'd Iron of Cæsar Moderatus, set down by Aldrovandus.

Deminer lib 1.

Lastly, Irons doe manifest a verticity not only upon refrigeration and constant situation, but (what is wonderfull and advanceth the magneticall hypothesis) they evidence the same by meer position according as they are inverted, and their extreames disposed respectively unto the earth. For if an Iron or Steele not firmly excited, be held perpendicularly or inclinatoryly unto the Needle; the lower end thereof will attract the *cuspis* or Southern point; but if the same extream be inverted and held under the Needle, it will then attract the lilly or northern point; for by inversion it changeth its direction acquired before, and receiveth a new and southern polarity from the earth, as being the upper extream. Now if an iron be touched before, it varieth not in this manner; for then it admits not this magneticall impression, as being already informed by the Loadstone, and polarily determined by it's preaction.

And from these grounds may we best determine why the Northern pole of the Loadstone attracteth a greater weight then the Southern on this side the Equator; why the stone is best preserved in a naturall and polary situation; and why as Gilbertus observeth, it respecteth that pole out of the earth, which

it

it regarded in its minerall bed and subterraneous position.

It is likewise true and wonderfull what is delivered of the Inclination or Declination of the Loadstone; that is, the descent of the needle below the plain of the Horizon. For long needles which stood before upon their *axis parallell* unto the Horizon, being vigorously excited, incline and bend downward; depressing the North extreame below the Horizon. That is the North on this, the South on the other side of the *Æquator*; and at the very Line or middle circle stand without deflection. And this is evidenced not only from observations of the needle in severall parts of the earth, but sundry experiments in any part thereof; as in a long Steel wire, equilibrated or evenly ballanced in the ayre; for excited by a vigorous Loadstone it will somewhat depreſſe its animated extreame, and intersect the horizontall circumference. It is also manifest in a needle pierced through a globe of Cork so cut away and pared by degrees that it will swim under water, yet sink not unto the bottome; which may be well effected; for if the Cork be a thought too light to sink under the surface, the body of the water may be attenuated with spirits of wine; if too heavy, it may be incrassated with salt; and if by chance too much be added, it may again be thinned by a proportionable addition of fresh water. If then the needle be taken out, actively touched and put in again, it will depreſſe and bow down its northern head toward the bottome, and advance its southern extremity toward the brim. This way invented by Gilbertus may seem of difficulty; the same with lesse labour may be observed in a needled sphere of Cork equally contiguous unto the surface of the water; for if the needle be not exactly equiponderant, that end which is a thought too light, if touched becometh even; that needle also which will but just swim under water, if forcibly touched will sink deeper, and sometime unto the bottome. If likewise that inclinatory vertue be destroyed by a touch from the contrary pole, that end which before was elevated will then decline; and this perhaps might be observed in some scales exactly ballanced, and in such needles which for their bulk can hardly be supported by the water. For if they be powerfully excited and equally let fall, they commonly sink down and break the water at that extreame whereat they were septentrionally excited; and by this way it is conceived there may be some fraud in the weighing of precious commodities, and such as carry a value in quarter grains, by placing a powerfull Loadstone above or below, according as we intend to depreſſe or elevate one extreame.

Now if these Magneticall emissions be only qualities, and the gravity of bodies incline them only unto the earth; surely that which moveth other bodies to descent carrieth not the stroak in this, but rather the Magneticall alliciency of the earth; unto which with alacrity it applieth it self, and in the very same way unto the whole earth, as it doth unto a single Loadstone: for if an untouched needle be at a distance suspended over a Loadstone, it will not hang parallel, but decline at the north extreame, and at that part will first salute its Director. Again, what is also wonderfull, this inclination is not invariable; for just under the line the needle lieth parallel with the Horizon, but sailing North or South it beginneth to incline, and increaseth according as it approacheth unto either pole; and would at last endeavour to erect it self; and this is no more then what it doth upon the Loadstone, and that more plainly upon the Terrella or sphericall magnet Cosmographically set out with circles of the Globe. For at the *Æquator* thereof the needle will stand rectangularly; but approaching northward toward the tropick it will regard the stone obliquely; and when it attaineth the pole, directly; and if its bulk be no impediment, erect it self and stand perpendicularly thereon. And therefore

fore upon strict observation of this inclination in severall latitudes and due records preserved, instruments are made whereby without the help of Sunne or Star, the latitude of the place may be discovered; and yet it appears the observations of men have not as yet been so just and equall as is desirable, for of those tables of declination which I have perused, there are not any two that punctually agree, though some have been thought exactly calculated, especially that which *Ridley* received from Mr *Brigs* in our time Geometry Professor in *Oxford*.

What the variation of the compass is.

It is also probable what is delivered concerning the variation of the compass that is the cause and ground thereof, for the manner as being confirmed by observation we shall not at all dispute. The variation of the compass is an Arch of the Horizon intercepted between the true and Magneticall meridian; or more plainly, a deflexion and siding East and West from the true meridian. The true meridian is a major circle passing through the poles of the world, and the Zenith or Vertex of any place, exactly dividing the East from the West. Now on this line the needle exactly lieth not, but diverts and varieth its point, that is, the North point on this side the *Equator*, the South on the other; sometimes unto the East, sometime toward the West, and in some few places varieth not at all. First, therefore it is observed that betwixt the shore of Ireland, France, Spain, Guiny and the Azores, the North point varieth toward the East, and that in some variety; at London it varieth eleven degrees, at Antwerp nine, at Rome but five; at some parts of the Azores it deflecteth not, but lieth in the true meridian on the other side of the Azores, and this side of the *Equator* the North point of the needle wheeleth to the West; so that in the latitude of 36. near the shore, the variation is about eleven degrees; but on the other side the *Equator*, it is quite otherwise: for about Capo Frio in *Brasil*, the South point varieth twelve degrees unto the West, and about the mouth of the Straits of Magellan five or six; but elongating from the coast of *Brasil* toward the shore of Africa it varieth Eastward, and ariving at Capo de las Agullas, it resteth in the Meridian, and looketh neither way.

The cause of the variation of the compass.

Now the cause of this variation may be the inequality of the earth, variously disposed, and differently intermixed with the Sea: withall the different disposure of its Magneticall vigor in the eminencies and stronger parts thereof; for the needle naturally endeavours to conform unto the Meridian, but being distracted, driveth that way where the greater and powerfuller part of the earth is placed. Which may be illustrated from what hath been delivered before, and may be conceived by any that understands the generalities of Geography. For whereas on this side the Meridian, or the Isles of Azores, where the first Meridian is placed, the needle varieth Eastward, it may be occasioned by that vast Tract of earth, that is, of Europe, Asia and Africa, seated toward the East, and disposing the needle that way. For arriving at some part of the Azores, or Islands of Saint Michael, which have a middle situation between these continents, and that vast and almost answerable Tract of America, it seemeth equally distracted by both; and diverting unto neither, doth parallel and place it self upon the true Meridian. But sayling farther it veers its Lilly to the West, and regardeth that quarter wherein the land is nearer or greater; and in the same latitude as it approacheth the shoar augmenteth its variation. And therefore as some observe, if Columbus or whosoever first discovered America, had apprehended the cause of this variation, having passed more then half the way, he might have been confirmed in the discovery; and assuredly foretold there lay a vast and mighty continent toward the West. The reason I confesse and inference is good, but the instance perhaps

perhaps not so. For Columbus knew not the variation of the compasse, whereof Sebastian Cabot first took notice, who after made discovery in the Northern parts of that continent. And it happened indeed that part of America was first discovered, which was on this side farthest distant, that is, Jamaica, Cuba, and the Isles in the Bay of Mexico. And from this variation doe some new discoverers deduce a probability in the attempts of the Northern passage toward the Indies.

Now because where the greater continents are joined, the action and effluence is also greater, therefore those needles doe suffer the greatest variation which are in countries which most doe feel that action, And therefore hath Rome far lesse variation then London; for on the West side of Rome, are seated the great continents of France, Spain, Germany, which take off the exuberance and in some way balance the vigour of the Eastern parts. But unto England there is almost no earth West, but the whole extent of Europe and Asia, lieth Eastward; and therefore at London it varieth eleven degrees, that is, almost one *Rhomb*. Thus also by reason of the great continent of Brasilia, Peru and Chili, the needle deflecteth toward the land twelve degrees; but at the straits of Magellan where the land is narrowed, and the sea on the other side, it varieth but five or six. And so likewise, because the Cape *delas Agulhas* hath sea on both sides near it, and other land remote and as it were equidistant from it; therefore at that point the needle conforms unto the true Meridian, and is not distracted by the vicinity of Adjacencies. This is the generall and great cause of variation. But if in certain creeks and valleys the needle prove irregular, and vary beyond expectance, it may be imputed unto some vigorous part of the earth, or Magneticall eminence not far distant. And this was the invention of D. Gilbert not many years past, a Physitian in London. And therefore although some assume the invention of its direction, and others have had the glory of the Card; yet in the experiments, grounds, and causes thereof, England produced the Father Philosopher, and discovered more in it, then Columbus or Americus did ever by it.

Unto this in great part true the reason of Kircherus may be added: That this variation proceedeth not only from terrestrious eminencies, and magneticall veins of earth, laterally respecting the needle, but the different coagmentation of the earth disposed unto the poles, lying under the sea and waters; which affect the needle with great or lesser variation, according to the vigour or imbecillity of these subterraneous lines: or the entire or broken compagination of the magneticall fabrick under it: as is observeable from severall Loadstones placed at the bottome of any water: for a Loadstone or needle upon the surface, will variously conform it self, according to the vigour or faintnesse of the Loadstones under it.

Thus also a reason may be alledged for the variation of the variation, and why, according to observation, the variation of the needle hath after some years been found to vary in some places, for this may proceed from mutations of the earth, by subterraneous fires, fumes, minerall spirits, or otherwise; which altering the constitution of the magneticall parts, in proceffe of time, doth vary the variation over the place.

It is also probable what is conceived of its Antiquity, that the knowledge of its polary power and direction unto the North was unknown unto the Ancients; and though Levinus Lemnius, and Cælius Calcagninus, are of another belief, is justly placed with new inventions by Pancirollus. For their Achilles and strongest argument is an expression in Plautus, a very ancient Authour, and contemporary unto Ennius. *Hic ventus jam secundus est, cape modo versoriam*. Now this *versoriam* they construe to be the compasse, which

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notwithstanding according unto Pineda, who hath discussed the point, Turnebus, Cabeus and divers others, is better interpreted the rope that helps to turn the ship; or as we say, doth make it tuck about; the Compasse declaring rather the ship is turned, then conferring unto its conversion. As for the long expeditions and sundry voiajes of elder times, which might confirm the Antiquity of this invention, it is not improbable they were performed by the help of stars; and so might the Phanicen navigators, and also Vlysses sail about the Mediterranean by the flight of birds, or keeping near the shore, and so might Hanno coast about Africk, or by the help of oars, as is expressed in the voyage of Jonah. And whereas it is contended that this verticity was not unknown unto Salomon, in whom is presumed a universality of knowledge; it will as forceably follow he knew the Art of Typography, powder and guns, or had the Philosophers stone, yet sent unto Ophir for gold. It is not to be denied, that beside his politicall wisdom; his knowledge in Philosophy was very large; and perhaps from his works therein, the ancient Philosophers especially Aristotle, who had the assistance of Alexanders acquirement, collected great observables; yet if he knew the use of the Compasse, his ships were surely very slow, that made a three years voyage from Eziongeber in the red Sea unto Ophir, which is supposed to be Taprobana or Malaca in the Indies; not many moneths sayl, and since in the same or lessertime, Drake and Candish performed their voyage about the earth.

And as the knowledge of its verticity is not so old as some conceive, so is it more ancient then most beleieve; nor had its discovery with guns, printing, or as many think, some years before the discovery of America. For it was not unknown unto Petrus Peregrinus a French-man, who two hundred years since left a Tract of the Magnet, and a perpetuall motion to be made thereby preserved by Gasserus. Paulus Venetus, and about five hundred years past Albertus Magnus make mention hereof, and quote for it a book of Aristotle *de lapide*, which book although we finde in the Catalogue of Laertius, yet with Cabeus I rather judge it to be the work of some Arabick writer, not many years before the daies of Albertus.

Lastly, It is likewise true what some have delivered of *Crocus Martis*, that is, steel corroded with vinegar, sulphur or otherwise, and after reverberated by fire. For the Loadstone will not at all attract it, nor will it adhere, but lie therein like sand. This is to be understood of *Crocus martis* well reverberated, and into a violet colour: for common chalybs *preparatus*, or corroded and powdered steel, the Loadstone attracts like ordinary filings of iron; and many times most of that which passeth for *Crocus martis*. So that this way may serve as a test of its preparation; after which it becometh a very good medecine in fluxes. The like may be affirmed of Flakes of iron that are rusty and begin to tend unto earth; for their cognation then expieth, and the Loadstone will nor regard them.

And therefore this may serve as a tryall of good Steel? the Loadstone taking up a greater masse of that which is most pure, it may also decide the conversion of wood into Iron, as is pretended from some waters: and the common conversion of Iron into Copper by the mediation of blew Coperose: for the Loadstone will not attract it, although it may be questioned, whether in this oporation the Iron or Coperose be transmuted; as may be doubted from the cognation of Coperose with Copper; and the quantity of Iron, remaining after the conversion. And the same may be usefull to some discovery concerning Vitrioll or Coperose of Mars, by some called Salt of Steel, made by the spirits of Vitrioll or Sulphur. For the corroded powder of Steel, will after

after ablution be actively attracted by the Loadstone; and also remaineth in little diminished quantity. And therefore whether those shooting Salts partake but little of steel, and be not rather the vitriolous spirits fixed into Salt by the effluvium or odor of Steel, is not without good question.

CHAP. III.

Concerning the Loadstone, therein of sundry common opinions, and received relations, Naturall, Historicall, Medicall, Magicall.

31.

And first not only a simple Heterodox, but a very hard Paradox, it will seem, and of great absurdity unto obstinate ears, if we say attraction is unjustly appropriated unto the Loadstone, and that perhaps we speak not properly, when we say vulgarly the Loadstone draweth Iron; and yet herein we should not want experiment and great authority. The words of Renatus des Cartes in his principles of Philosophy are very plain. *Præterea magnes trahet ferrum, sive potius magnes & ferrum ad invicem accedunt, neque enim ulla ibi tractio est*. The same is solemnly determined by Cabeus. *Nec magnes trahit propriè ferrum, nec ferrum ad se magnetem provocat, sed ambo pari conatu ad invicem conflunt*. Concordant hereto is the assertion of Doctor Ridley, Physician unto the Emperour of Russia in his Tract of Magneticall bodies; defining Magneticall attraction to be a naturall incitation and disposition conforming unto contiguity; an union of one Magneticall body with another; and no violent haling of the weak unto the stronger. And this is also the doctrine of Gilbertus; by whom this motion is termed coition, and that not made by any faculty attractive of one, but a Syndrome and concurrence of each; a coition alway of their vigours, and also of their bodies, if bulk or impediment prevent not; and therefore those contrary actions which flow from opposite poles or faces, are not so properly expulsion and attraction, as Sequela and Fuga a mutuall flight and following. Consonant whereto are also the determinations of Helmontius and Kircherus.

The same is also confirmed by experiment; for if a piece of Iron be fastened in the side of a bowl or basin of water, a Loadstone swimming freely in a boat of cork, will presently make unto it. And so if a Steel or knife untouched be offered toward the needle that is touched, the needle nimbly moveth toward it; and conformeth unto union with the Steel that moveth not. Again, If a Loadstone be finely filed, the atomes or dust thereof will adhere unto Iron that was never touched, even as the powder of Iron doth also unto the Loadstone. And lastly, If in two skiffs of cork, a Loadstone and Steel be placed within the orb of their activities, the one doth not move the other standing still, but both hoise sayle and steer unto each other; so that if the Loadstone attract, the Steel hath also its attraction; for in this action the Alliciency is reciprocall; which jointly felt, they mutually approach and run into each others armes.

And therefore surely more moderate expressions become this action, then what the Ancients have used; which some have delivered in the most violent termes of their language; so Austine calls it, *Mirabilem ferri raptorem*: Hippocrates, λίθον ὃν ἂν εἰσέλθῃν ἀρπάξῃ, *Lapis qui ferrum rapit*. Galen disputing against Epicurus useth the term ἑλκων, but this is also too violent: among the Ancients Aristotle spake most warily, λίθον ὃστις ἂν εἰσέλθῃν κινῇ, *Lapis qui ferrum movet*: and in some tollerable acception doe run the expressions of Aquinas, Scaliger and Cusanus.

Attraction reciprocall betwixt the Loadstone and Iron.

Many relations are made, and great expectations are raised from the Magnes Carneus, or a Loadstone, that hath a faculty to attract not only Iron but flesh; but this upon enquiry, and as Cabeus hath also observed, is nothing else but a weak, an inanimate kinde of Loadstone, veined here and there with a few magneticall and ferreous lines; but chiefly consisting of a bolary and clammy substance, whereby it adheres like Hamatites, or Terra Lemnia, unto the Lipps; and this is that stone which is to be understood, when Physitians join it with Ætites or the Eagle stone, and promise therein a vertue against abortion.

There is sometime a mistake concerning the variation of the compasse, and therein one point is taken for another. For beyond the Æquator some men account its variation by the diversion of the Northern point, whereas beyond that circle the Southern point is sovereign, and the North submits his prehemincy. For in the Southern coast either of America or Africa, the Southern point deflects and varieth toward the land, as being disposed and spirited that way by the meridionall and proper Hemisphere. And therefore on that side of the earth the varying point is best accounted by the South. And therefore also the writings of some, and Maps of others, are to be enquired, that make the needle decline unto the East twelve degrees at Capo Frio, and six at the straits of Magellan; accounting hereby one point for another, and preferring the North in the liberties and province of the South.

That Garlick hinders not the attraction of the Loadstone,

But certainly false it is what is commonly affirmed and beleaved, that Garlick doth hinder the attraction of the Loadstone; which is notwithstanding delivered by grave and worthy Writers; by Pliny, Solinus, Ptolomy, Plutarch, Albertus, Mathiolus, Rueus, Langius, and many more. An effect as strange as that of Homers Moly, and the Garlick the gods bestowed upon Ulysses. But that it is evidently false, many experiments declare. For an Iron wire heated red hot and quenched in the juyce of Garlick, doth notwithstanding contract a verticity from the earth, and attracteth the Southern point of the Needle. If also the tooth of a Loadstone be covered or stuck in Garlick, it will notwithstanding attract; and Needles excited and fixed in Garlick untill they begin to rust, doe yet retain their attractive and polary respects.

Nor yet the Adamant or Diamond

Of the same stamp is that which is obtruded upon us by Authors ancient and modern, that an Adamant or Diamond prevents or suspends the attraction of the Loadstone; as is in open termes delivered by Pliny. *Adamas dissidet cum Magnete Lapide, ut juxta positus ferrum non patitur abstrahi, aut si admotus magnes apprehenderit, rapiat atque auferat.* For if a Diamond be placed between a needle and a Loadstone, there will nevertheless ensue a Coition even over the body of the Diamond: and an easie matter it is to touch or excite a needle through a Diamond, by placing it at the tooth of a Loadstone; and therefore the relation is false or our estimation of these gems untrue; nor are they Diamonds which carry that name amongst us.

It is not suddenly to be received what Paracelsus in his book *De generatione rerum*, affirmeth, that if a Loadstone be anointed with Mercuriall oyle, or only put into Quicksilver, it omitteth its attraction for ever. For we have found that Loadstones and touched needles which have laid long time in Quicksilver have not amitted their attraction; and we also finde that red hot needles or wires extinguished in Quicksilver, doe yet acquire a verticity according to the Laws of position in extinction. Of greater repugnancy unto reason is that which he delivers concerning its graduation, that heated in fire and often extinguished

tinguished in oyle of Mars or Iron, it acquires an ability to extract or draw forth a naile fastened in a wall; for, as we have declared before, the vigor of the Loadstone is destroyed by fire, nor will it be reimpregnated by any other Magnete then the earth.

Nor is it to be made out what seemeth very plausible, and formerly hath deceived us, that a Loadstone will not attract an Iron or Steel red hot. The falsity hereof discovered first by Kircherus, we can confirm by iterated experiment; very sensibly in armed Loadstones, and obscurely in any other.

True it is, that besides fire some other waies there are of its destruction, as Age, Rust; and what is least dreamt on, an unnaturall or contrary situation. For being impolarily adjoined unto a more vigorous Loadstone, it will in a short time exchange its poles; or being kept in undue position, that is, not lying on the meridian or with its poles inverted, it receives in longer time impair in activity, exchange of faces, and is more powerfully preserved by site then by the dust of Steel. But the sudden and surest way is fire; that is, fire not only actuall but potentiall; the one surely and suddenly, the other slowly and imperfectly; the one changing, the other destroying the figure. For if distilled Vinegar or Aqua fortis be powred upon the powder of Loadstone, the subsiding powder dried, retains some magneticall vertue, and will be attracted by the Loadstone: but if the menstruum or dissolvent be evaporated to a consistence, and afterward doth shoot into Icycles or Crystals, the Loadstone hath no power upon them; and if in a full dissolution of Steel a separation of parts be made by precipitation or exhalation, the exsiccated powder hath lost its wings and ascends not unto the Loadstone. And though a Loadstone fired doe presently omit its proper vertue, and according to the position in cooling contracts a new verticity from the earth, yet if the same be laid a while in Aqua fortis or other corrosive water, and taken out before a considerable corrosion; it still reserves its attraction, and will convert the Needle according to former polarity. And that duly preserved from violent corrosion, or the naturall disease of rust, it may long conserve its vertue, beside the Magneticall vertue of the earth, which hath lasted since the creation, a great example we have from the observation of our learned friend M^r Graves, in an Egyptian Idoll cut out of Loadstone, and found among the Mummies; which still retains its attraction, though probably taken out of the mine about two thousand years agoe.

It is improbable what Pliny affirmeth concerning the object of its attraction, that it attracts not only ferreous bodies, but also *liquorem vitri*; for in the body of glasse there is no ferreous or Magneticall nature which might occasion attraction. For of the glasse we use, the purest is made of the finest sand and the ashes of Chali or Glassewort, and the courser or green sort of the ashes of brake or other plants. True it is that in the making of glasse, it hath been an ancient practice to cast in pieces of Loadstone: conceiving it carried away all ferreous and earthy parts, from the pure and running portion of glasse, which the Loadstone would not respect, and therefore if that attraction were not rather electricall then Magneticall, it was a wondrous effect what Helmont delivereth concerning a glasse wherein the magistry of Loadstone was prepared; which after retained an attractive quality.

But that the Magnete attracteth more then common Iron, we can affirm. It attracteth the Smyris or Emery in powder; It draweth the shining or glassie powder brought from the Indies, and usually implied in writing dust. There is also in Smiths cinders by some adhesion of Iron whereby they appear as

it were glazed, sometime to be found a Magneticall operation; for some thereof applied have power to move the Needle. But whether the ashes of vegetables which grow over Iron mines contract a Magneticall quality, as containing some minerall particles, which by sublimation ascend unto their roots, and are attracted together with their nourishment; according as some affirm from the like observations upon the mines of Silver, Quicksilver and Gold; we must refer unto further experiment.

Nieremberg
the Jesuites
conceit of mans
body.

It is also improbable and something singular what some conceive, and Eusebius Nieremberg a late writer and Jesuit of Spain delivers, that the body of man is Magneticall, and being placed in a boat, the vessell will never rest untill the head respecteth the North. If this be true, the bodies of Christians doe lye unnaturally in their graves. King Cheops in his tomb, and the Jews in their beds have fallen upon the naturall position: who reverentially declining the situation of their temple, nor willing to lye as that stood; doe place their beds from North to South, and delight to sleep meridionally. This opinion confirmed would much advance the microcosmicall conceit, and commend the Geography of Paracelsus; who according to the cardinall points of the world divideth the body of man; and therefore working upon humane ordure and by long preparation rendring it odiferous, he terms it *Zibeta Occidentalis*, Western Civet; making the face the East, but the posteriors the America or Western part of his microcosme. The verity hereof, might easily be tried in Wales, where there are portable boats, and made of leather, which would convert upon the impulsions of any verticity; and seem to be the same whereof in his description of Brittain Cæsar hath left some mention.

Anagrammatically.

Another kinde of verticity, is that which Angelus *doce mihi juu, alias*, Michael Sundevogis, in a Tract *de sulphure*, discovereth in Vegetables, from sticks let fall or depressed under water; which equally framed and permitted unto themselves, will ascend at the upper end, or that which was verticall in its vegetation; wherein notwithstanding, as yet, we have not found satisfaction. Although perhaps too greedy of magnalities, we are apt to make but favourable experiments concerning welcome truths, and such desired verities.

Hora subjecti-
væ.

It is also wondrous strange what Lælius Bisciola reporteth, that if unto ten ounces of Loadstone one of Iron be added, it increaseth not unto eleven, but weighs ten ounces still. A relation inexcusable in his work, of leasurable howres: the examination being as ready as the relation, and the falsity tried as easily as delivered. Nor is it to be omitted what is taken up by Cæsius Bernardus a late Mineralogist, and originally confirmed by Porta, that needles touched with a Diamond contract a verticity, even as they doe with a Loadstone; which will not consist with experiment. And therefore, as Gilbertus observeth, he might be deceived, in touching such needles with Diamonds, which had a verticity before, as we have declared most needles to have; and so had he touched them with gold or silver, he might have concluded a magneticall vertice therein.

In the same form may we place Fracastorius his attraction of silver, Philostratus his Pantarbes; Apollodorus and Beda his relation of the Loadstone that attracted only in the night. But most inexcusable is Franciscus Rueus, a man of our own profession; who in his Discourse of gemmes mentioned in the Apocalyps, undertakes a Chapter of the Loadstone; wherein substantially and upon experiment he scarce delivereth any thing; making enumeration of its traditionall qualities; whereof he seemeth to beleieve many, and some above convicted by experience, he is faine to salve as impostures of the devil.

devil. But Bœtius de Boot Physician unto Rodolphus the second, hath recompenced this defect; and in his Tract, *de Lapidibus & Gemmis*, speaks very materially hereof; and his discourse is consonant unto experience and reason.

As for relations Historically, though many there be of lesse account, yet two alone deserve consideration; The first concerneth magneticall rocks, and attractive mountains in severall parts of the earth. The other the tombe of Mahomet and bodies suspended in the aire. Of rocks magneticall there are likewise two relations; for some are delivered to be in the Indies, and some in the extremity of the North, and about the very pole. The Northern account is commonly ascribed unto Olaus Magnus Archbishop of Upsale, who out of his predecessour Joannes, Saxo and others, compiled a history of some Northern Nations; but this assertion we have not discovered in that work of his which passeth among us, and should beleieve his Geography herein no more then that in the first line of his book; when he affirmeth that Biarmia (which is not seventy degrees in latitude) hath the pole for its Zenith, and Equinoctiall for the Horizon.

Now upon this foundation how uncertain soever men have erected mighty illusions; ascribing thereto the cause of the Needles direction, and conceiving the effluxions from these mountains and rocks invite the lilly toward the North; which conceit though countenanced by learned men, is not made out either by experience or reason; for no man hath yet attained or given a sensible account of the pole by some degrees. It is also observed the Needle doth very much vary as it approacheth the pole; whereas were there such direction from the rocks, upon a nearer approachment it would more directly respect them. Beside, were there such magneticall rocks under the pole, yet being so far removed they would produce no such effect; for they that faile by the Isle of Ilua now called Elba in the Tuscan sea which abounds in veins of Loadstone, observe no variation or inclination of the Needle; much lesse may they expect a direction from rocks at the end of the earth. And lastly, men that ascribe thus much unto rocks of the North, must presume or discover the like magneticals at the South: For in the Southern seas and far beyond the Equator, variations are large, and declinations as constant as in the Northern Ocean.

The other relation of Loadstone mines and rocks, in the shore of India is delivered of old by Pliny; wherein saith he, they are so placed both in abundance and vigor, that it proves an adventure of hazard to passe those coasts in a ship with Iron nailes. Serapion the Moor, an Author of good esteem and reasonable antiquity, confirmeth the same, whose expression in the word *magnes* is this. The mine of this stone is in the sea coast of India; whereto when Ships approach, there is no Iron in them which flies not like a bird unto these mountains; and therefore their Ships are fastened not with Iron but wood, for otherwise they would be torn to peeces. But this assertion, how positive soever, is contradicted by all Navigators that passe that way; which are now many and of our own Nation; and might surely have been controuled by Nearchus the Admirall of Alexander; who not knowing the compasse, was faine to coast that shore.

For the relation concerning Mahomet, it is generally beleaved his tomb at Medina Talnabi, in Arabia, without any visible supporters hangeth in the ayre between two Loadstones artificially contrived both above and below. Which conceit is very fabulous, and evidently false from the testimony of ocular Testators; who affirm his tomb is made of stone and lyeth upon the ground; as besides others the learned Vossius observeth from Gabriel

(Probably) there
be no magneticall
Rocks.

Mahometers tomb
of stone, and
built upon the
ground.

Gabriel Sionita, and Joannes Hefronita, two Maronites in their relations hereof. Of such intentions and attempt by Mahometans we read in some relators; and that might be the occasion of the fable, which by tradition of time and distance of place enlarged into the story of being accomplished. And this hath been promoted by attempts of the like nature; for we read in Pliny that one Dinocrates began to Arch the Temple of Arsinoe in Alexandria with Loadstone, that so her statue might be suspended in the ayre to the amazement of the beholders. And to lead on our credulity herein, confirmation may be drawn from History and Writers of good authority; so is it reported by Ruffinus, that in the Temple of Serapis there was an Iron Chariot suspended by Loadstones in the ayre, which stones removed, the Chariot fell and dashed into pieces. The like doth Beda report of Bellerophons horse, which framed of Iron, and placed between two Loadstones with wings expanded, hung pendulous in the ayre.

The verity of these stories we shall not further dispute, their possibility we may in some way determine; if we conceive, what no man will deny, that bodies suspended in the ayre have this suspension from one or many Loadstones placed both above and below it; or else by one or many placed only above it. Likewise the body to be suspended in respect of the Loadstone above, is either placed first at a pendulous distance in the medium, or else attracted unto that site by the vigor of the Loadstone; and so we first affirm that possible it is a body may be suspended between two Loadstones; that is, it being so equally attracted unto both that it determineth it self unto neither. But surely this position will be of no duration; for if the ayre be agitated or the body waved either way, it omits the equilibration and disposeth it self unto the nearest attractor. Again, it is not impossible (though hardly feasible) by a single Loadstone to suspend an Iron in the ayre, the Iron being artificially placed, and at a distance guided toward the stone, untill it finde the neutrall point, wherein its gravity just equals the magneticall quality; the one exactly extolling as much as the other depreffeth. And lastly, impossible it is that if an Iron rest upon the ground, and a Loadstone be placed over it, it should ever so arise as to hang in the way or medium; for that vigor which at a distance is able to overcome the resistance of its gravity and to lift it up from the earth, will as it approacheth nearer be still more able to attract it; and it will never remain in the middle that could not abide in the extrems: Now the way of *Baptista Porta* that by a thred fasteneth a Needle to a table, and then so guides and orders the same, that by the attraction of the Loadstone it abideth in the ayre, infringeth not this reason; for this is a violent retention; and if the thred be loosened, the Needle ascends and adheres unto the Attractor.

The third consideration concerneth Medicall relations; wherein what ever effects are delivered, they are either derived from its minerall and ferreous condition, or else magneticall operation. Unto the ferreous and minerall quality pertaineth what Dioscorides an ancient Writer and Souldier under Anthony and Cleopatra, affirmeth, that half a dram of Loadstone given with honey and water, proves a purgative medicine, and evacuateth grosse humors. But this is a quality of great incertainty; for omitting the vehicle of water and honey, which is of a laxative power it self, the powder of some Loadstones in this dose doth rather constipate and binde, then purge and loosen the belly. And if sometimes it cause any laxity, it is probably in the same way with Iron and Steel unprepared; which will disturb some bodies, and work by purge and vomit. And therefore, whereas it is delivered in a book ascribed unto Galen that it is a good medicine in dropfies, and evacuates the

Powder of Load-
stones of what
operation,

the waters of persons so affected: It may I confesse by ficcidity and astringency afford a confirmation unto parts relaxed, and such as be hydropically disposed; and by these qualities it may be usefull in Hernias or Ruptures, and for these it is commended by Aëtius, Aegineta and Oribasius; who only affirm that it contains the vertue of Hæmatites, and being burnt was sometimes vend- ed for it. Wherein notwithstanding there is an higher vertue: and in the same prepared, or in rich veins thereof, though crude, we have observed the effects of Chalybeat medicines; and the benefits of Iron and Steel in strong obstructions. And therefore that was probably a different vein of Loadstone, or infected with other minerall mixture, which the ancients commended for a purgative medicine, and ranked the same with the violentest kindes there- of: with Hippophae, Cneoron and Thymelæa, as we finde it in Hippocrates; and might be somewhat doubtfull, whether by the Magnesian stone, he un- derstood the Loadstone; did not Achilles Statius define the same, the stone that loveth Iron.

To this minerall condition belongeth what is delivered by some, that wounds which are made with weapons excited by the Loadstone, contract a malignity, and become of more difficult cure; which neverthelesse is not to be found in the incision of Chyrurgions with knives and lancets touched; which leave no such effect behind them. Hither must we also referre that affirmative which saies the Loadstone is poison; and therefore in the lists of poisons we finde it in many Authors. But this our experience cannot confirm, and the practice of the King of Zeilan clearly contradicteth; who as *Garcias ab Horto*, Physician unto the Spanish Viceroy delivereth, hath all his meat served up in dishes of Loadstone, and conceives thereby he preserveth the vi- gour of youth.

But surely from a magneticall activity must be made out what is let fall by Aëtius, that a Loadstone held in the hand of one that is podagricall, doth either cure or give great ease in the Gout. Or what Marcellus Empericus affirmeth, that as an amulet it also cureth the head-ach; which are but additions unto its proper nature, and hopefull enlargements of its allowed attraction; for perceiving its secret power to draw magneticall bodies, men have invented a new attraction to draw out the dolour and pain of any part. And from such grounds it surely became a philter, and was conceived a medicine of some venereall attraction; and therefore upon this stone they graved the Image of Venus, according unto that of Claudian, *Venerem magnetica gemma figurat*. Hither must we also referre what is delivered concerning its power to draw out of the body bullets and heads of arrows, and for the like intention is mixed up in plaisters: which course although as vain and ineffectuall it be re- jected by many good Authors, yet is it not me thinks so readily to be denied, nor the practice of many Physicians which have thus compounded plaisters, thus suddenly to be condemned, as may be observed in the *Emplastrum divi- num Nicolai*, the *Emplastrum nigrum* of Augspurge, the *Opodeldoch* and *Attraktivum* of Paracelsus, with severall more in the Dispensatory of Wecker, and practice of Sennertus; the cure also of Hernias, or Ruptures in Pareus, and the method also of curation lately delivered by Daniel Beckherus, and approved by the Professors of Leyden in the Tract *de Cultivoro Prussiano*, 1636. that is, of a young man of Spruceland that casually swallowed down a knife about ten inches long, which was cut out of his stomach and the wound heal- ed up. In which cure to attract the knife to a convenient situation, there was applied a plaister made up with the powder of Loadstone. Now this kinde of practice Libavius, Gilbertus, and lately Swickardus in his *Ars Magnetica*, con- demn, as vain, and altogether unusefull; because a Loadstone in powder hath

*De morbis in-
ternis,*

The cure of the
Prussian knife.

no attractive power; for in that form it omits his polary respects, and loseth those parts which are the rule of attraction.

Wherein to speak compendiously, if experiment hath not deceived us, we first affirm, that a Loadstone in powder omits not all attraction. For if the powder of a rich vein be in a reasonable quantity presented toward the Needle freely placed, it will not appear to be void of all activity, but will be able to stir it. Nor hath it only a power to move the Needle in powder and by it self, but this will it also doe, if incorporated and mixed with plaisters; as we have made triall in the *Emplastrum de Minio*; with half an ounce of the masse, mixing a dram of Loadstone. For applying the magdaleon or roale unto the Needle it would both stir and attract it; not equally in all parts, but more vigorously in some, according unto the mine of the stone more plentifully dispersed in the masse. And lastly, in the Loadstone powdered, the polary respects are not wholly destroyed. For those diminutive particles are not atomical or meerly indivisible, but consist of dimensions sufficient for their operations though in obscurer effects. Thus if unto the powder of Loadstone or Iron we admove the North pole of the Loadstone, the powders or small divisions will erect and conform themselves thereto: but if the South pole approach, they will subside, and inverting their bodies respect the Loadstone with the other extreame. And this will happen not only in a body of powder together, but in any particle or dust divided from it.

Now though we disavow not these plaisters, yet shall we not omit two cautions in their use; that therein the stone be not too subtilly powdered; for it will better manifest its attraction in a more sensible dimension. That where is desired a speedy effect, it may be considered whether it were not better to relinquish the powdered plaisters, and to apply an entire Loadstone unto the part: And though the other be not wholly ineffectuall, whether this way be not more powerfull, and so might have been in the cure of the young man delivered by Beckerus.

The last consideration concerneth Magicall relations; in which account we comprehend effects derived and fathered upon hidden qualities, specificall forms, Antipathies and Sympathies, whereof from received grounds of Art, no reasons are derived. Herein relations are strange and numerous; men being apt in all ages to multiply wonders, and Philosophers dealing with admirable bodies as Historians have done with excellent men; upon the strength of their great achievements, ascribing acts unto them not only false, but impossible; and exceeding truth as much in their relations, as they have others in their actions. Hereof we shall briefly mention some delivered by Authors of good esteem; whereby we may discover the fabulous inventions of some, the credulous supinity of others, and the great disservice unto truth by both; multiplying obscurities in nature, and authorising hidden qualities that are false; whereas wise men are ashamed there are so many true.

And first, Dioscorides puts a shrewd quality upon it, and such as men are apt enough to experiment, and therewith discovers the incontinency of a wife, by placing the Loadstone under her pillow; whereupon she will not be able to remain in bed with her husband. The same he also makes a help unto theevery. For theeves saith he, having a designe upon a house, doe make a fire at the four corners thereof, and cast therein the fragments of Loadstone; whence ariseth a fume that so disturbeth the inhabitants, that they forsake the house and leave it to the spoil of the robbers. This relation how ridiculous soever, hath Alberrus taken up above a thousand years after, and Marbodeus the Frenchman hath continued it the same in Latine verse; which with the notes of Pictorius is currant unto our daies. As strange must be the
Lithomancy

Lithomancy or divination from this stone, whereby as Tzetzes delivers, Helenus the Prophet foretold the destruction of Troy; and the Magick thereof, not safely to be beleaved, which was delivered by Orpheus, that sprinkled with water it will upon a question emit a voice not much unlike an Infant. But surely the Loadstone of Laurentius Guascus the Physician is never to be matched; wherewith as Cardan delivereth, whatsoever needles or bodies were touched, the wounds and punctures made thereby, were never felt at all. And yet as strange a vertue is that which is delivered by some, that a Loadstone preserved in the salt of a Remora, acquires a power to attract gold out of the deepest wells. Certainly a studied absurdity, not casually cast out, but plotted for perpetuity: for the strangeness of the effect ever to be admired, and the difficulty of the triall never to be convicted.

These conceits are of that monstrosity that they refute themselves in their recitements. There is another of better notice, and whispered thorow the world with some attention; credulous and vulgar auditors readily beleaving it, and more judicious and distinctive heads, not altogether rejecting it. The conceit is excellent, and if the effect would follow, somewhat divine; whereby we might communicate like spirits, and conferre on earth with Menippus in the Moon; which is pretended from the sympathy of two needles touched with the same Loadstone, and placed in the center of two Abecedary circles, or rings with letters described round about them; one friend keeping one, and another the other, and agreeing upon an hour wherein they will communicate: For then, faith tradition, at what distance of place soever, when one needle shall be removed unto any letter; the other by a wonderfull sympathy will move unto the same. But herein I confesse my experience can finde no truth; for having expressly framed two circles of wood, and according to the number of the Latine letters divided each into twenty three parts; placing therein two stiles or needles composed of the same steel, touched with the same Loadstone, and at the same point: of these two, whensoever I removed the one, although but at the distance of half a spanne, the other would stand like Hercules pillars, and if the earth stand still, have surely no motion at all. Now as it is not possible that any body should have no boundaries, or Sphere of its activity, so is it improbable it should effect that at distance, which nearer hand it cannot at all perform.

Again, The conceit is ill contrived, and one effect inferred, whereas the contrary will ensue. For if the removing of one of the needles from *A* to *B*, should have any action or influence on the other; it would not intice it from *A* to *B*, but repell it from *A* to *Z*: for needles excited by the same point of the stone, doe not attract, but avoid each other, even as these also doe, when their invigorated extreames approach unto one another.

Lastly, Were this conceit assuredly true, yet were it not a conclusion at every distance to be tried by every head: it being no ordinary or Almanack businesse, but a probleme Mathematicall, to finde out the difference of hours in different places; nor doe the wisest exactly satisfie themselves in all. For the hours of severall places anticipate each other, according unto their Longitudes; which are not exactly discovered of every place; and therefore the triall hereof at a considerable intervall, is best performed at the distance of the Antæci; that is, such habitations as have the same Meridian and equall parallel, on different sides of the Æquator; or more plainly the same Longitude, and the same Latitude unto the South, which we have in the North. For unto such Situations it is noon and midnight at the very same time.

And therefore the Sympathy of these Needles is much of the same mould,

104 #insibion.

with that intelligence which is pretended from the flesh of one body transmuted by *Incision* into another. For if by the Art of *Taliacorius*, a permutation of flesh, or transmutation be made from one mans body into another, as if a piece of flesh be exchanged from the bicipitall muscle of either parties arme, and about them both, an Alphabet circumscribed; upon a time appointed as some conceptions affirm, they may communicate at what distance soever. For if the one shall prick himself in *A*, the other at the same time will have a sence thereof in the same part; and upon inspection of his arme, perceive what letters the other points out in his. Which is a way of intelligence very strange; and would requite the Art of *Pythagoras*; who could reade a reverse in the Moon.

Now this Magneticall conceit how strange soever, might have some original in reason; for men observing no solid body, whatsoever did interrupt its action, might be induced to beleve no distance would terminate the same; and most conceiving it pointed unto the pole of heaven, might also opinion that nothing between could restrain it. Whosoever was the Author, the *Æolus* that blew it about, was *Famianus Strada*, that elegant Jesuit in his Rhetoricall prolusions, who chose out this subject to expresse the stile of *Lucretius*. But neither *Baptista Porta*, *de furtivis literarum notis*; *Trithemius* in his *Steganography*, *Selenus* in his *Cryptography*, or *Nuncius inanimatus* make any consideration hereof: although they deliver many waies to communicate thoughts at distance. And this we will not deny may in some manner be effected by the Loadstone; that is, from one room into another; by placing a table in the wall common unto both, and writing thereon the same letters one against another: for upon the approach of a vigorous Loadstone unto a letter on this side, the Needle will move unto the same on the other: But this is a very different way from ours at present; and hereof there are many waies delivered, and more may be discovered which contradict not the rule of its operations.

Nunc. inanim.
by D. Godwin
Bish. of Here-
ford.

As for *unguentum Armarium*, called also *Magneticum*, it belongs not to this discourse, it neither having the Loadstone for its ingredient, nor any one of its actions: but supposeth other principles, as common and universall spirits, which convey the action of the remedy unto the part, and conjoins the vertue of bodies far disjoined. But perhaps the cures it doth, are not worth so mighty principles; it commonly healing but simple wounds, and such as mundified and kept clean, doe need no other hand then that of Nature, and the Balsam of the proper part. Unto which effect, there being fields of Medicines, it may be a hazardous curiosity to rely on this; and because men say the effect doth generally follow, it might be worth the experiment to try, whether the same will not ensue upon the same method of cure, by ordinary Balsams, or common vulnerary plasters.

Many other Magnetismes may be pretended, and the like attractions through all the creatures of nature. Whether the same be verified in the action of the Sun upon inferiour bodies, whether there be *Æolian* magnets, whether the flux and reflux of the sea be caused by any Magnetisme from the Moon; whether the like be really made out, or rather metaphorically verified in the sympathies of plants and animals, might afford a large dispute; and *Kircherus* in his *Catena Magnetica* hath excellently discussed the same; which work came late unto our hand, but might have much advantaged this discourse.

Other Discourses there might be made of the Loadstone, as Morall, Mysticall, Theologicall; and some have handsomly done them, as *Ambrose*, *Austine*, *Gulielmus Parisiensis*, and many more; but these fall under no rule, and

and are as boundlesse as mens inventions ; and though honest mindes doe glorifie God hereby ; yet doe they most powerfully magnifie him, and are to be looked on with another eye, who demonstratively set forth its Magnalities ; who not from postulated or precarious inferences, entreat a courteous assent ; but from experiments and undeniable effects, enforce the wonder of its Maker.

CHAP. IV.
of bodies Electricall.

HAVING thus spoken of the Loadstone and bodies Magneticall, I shall in the next place deliver somewhat of Electricall, and such as may seem to have attraction like the other ; and hereof we shall also deliver what particularly spoken or not generally known is manifestly or probably true, what generally beleaved is also false or dubious. Now by Electricall bodies, I understand not such as are Metallicall, mentioned by Pliny, and the Ancients ; for their Electrum was a mixture made of gold, with the addition of a fifth part of silver ; a substance now as unknown, as true Aurichalcum, or Corinthian brasse, and set down among things lost by Pancirollus. Nor by Electrick bodies doe I conceive such only as take up shavings, strawes, and light bodies, in which number the Ancients only placed Jet and Amber ; but such as conveniently placed unto their objects attract all bodies palpable whatsoever. I say, conveniently placed, that is, in regard of the object, that it be not too ponderous, or any way affixed ; in regard of the Agent, that it be not foul or sullied, but wiped, rubbed and excited ; in regard of both, that they be conveniently distant, and no impediment interposed. I say, all bodies palpable, thereby excluding fire, which indeed it will not attract, nor yet draw through it ; for fire consumes its effluxions by which it should attract.

Bodies Electricall,
What.

Now although in this rank but two were commonly mentioned by the Ancients, Gilbertus discovereth many more ; as Diamonds, Saphyres, Carbuncles, Iris, Opalls, Amethystes, Berill, Chrystall, Bristoll stones, Sulphur, Mastick, hard Wax, hard Rosin, Arsenic, Sal gemme, roch Alume, common Glasse, Stibium, or glasse of Antimony. Unto these Cabeus addeth white Wax, Gum Elemi, Gum Guaici, Pix Hispanica, and Gypsum. And unto these we adde gum Anime, Benjamin, Talcum, Chyna dishes, Sandaraca, Turpentine, Styrax Liquida, and Caranna dried into a hard consistence. And the same attraction we finde, not only in simple bodies, but such as are much compounded ; as the Oxicroceum plaster, and obscurely that *ad Herniam*, and *Gratia Dei*, all which smooth and rightly prepared, will discover a sufficient power to stirre the Needle, settled freely upon a well pointed pinne, and so as the Electrick may be applied unto it without all disadvantage.

But the attraction of these Electricks we observe to be very different. Resinous or unctuous bodies, and such as will flame, attract most vigorously, and most thereof without frication ; as Anime, Benjamin, and most powerfully good hard wax, which will convert the Needle almost as actively as the Loadstone ; and we beleve that all or most of this substance if reduced to hardness, tralucency or clearnesse, would have some attractive quality. But juyces concrete, or gums easily dissolving in water, draw not at all, as Aloe, Opium, Sanguis Draconis, Lacca, Galbanum, Sagapenum. Many stones also both precious and vulgar, although terse and smooth, have not this power attractive ;

tractive; as Emeralds, Pearl, Jaspis, Corneleans, Agathe, Heliotropes, Marble, Alabaster, Touchstone, Flint and Bezoar. Glasse attracts but weakly, though clear; some slick-stones and thick glasses indifferently: Arsenic but weakly; so likewise glasse of Antimony; but Crocus Metallorum not at all. Saltes generally but weakly, as Sal Gemma, Alum and also Talke; nor very discoverably by any frication: but if gently warmed at the fire, and wiped with a dry cloth, they will better discover their Electricities.

No mettall attracts, nor animall concretion we know, although polite and smooth; as we have made triall in Elkes hooves, Hawkes talons, the sword of a Sword fish, Tortoyse shels, Sea-horse and Elephants teeth, in bones, in Harts horn, and what is usually conceived Unicorns horn; no wood though never so hard and polished, although out of some Electrick bodies proceed; as Ebony, Box, Lignum vitæ, Cedar, &c. And although Jet and Amber be reckoned among Bitumens, yet neither doe we finde Asphaltus, that is, Bitumen of Judea, nor Seacole, nor Camphire, nor Mummia to attract; although we have tried in large and polished pieces. Now this attraction have we tried in strawes and paleous bodies, in needles of Iron equilibrated; powders of wood and Iron, in Gold and Silver foliate; and not only in solid but fluent and liquid bodies, as oyles made both by expression and distillation; in water, in spirits of wine, vitrioll and Aqua fortis.

But how this attraction is made is not so easily determined; that 'tis performed by effluviūms is plain and granted by most; for Electricks will not commonly attract, except they grow hot or become perspirable. For if they be foul and obnubilated, it hinders their effluxion; nor if they be covered though but with Linen or Sarfenet, or if a body be interposed, for that intercepts the effluviūm. If also a powerfull and broad Electrick of wax or Anime be held over fine powder, the Atomes or small particles will ascend most numerously unto it; and if the Electrick be held unto the light, it may be observed that many thereof will fly, and be as it were discharged from the Electrick to the distance sometime of two or three inches; which motion is performed by the breath of the effluviūm issuing with agility; for as the Electrick cooleth, the projection of the Atomes ceaseth.

Cabeus his way
for attraction in
bodies Electrick.

The manner hereof Cabeus wittily attempteth, affirming that this effluviūm attenuateth and impelleth the neighbour ayre, which returning home in a gyration, carrieth with it the obvious bodies unto the Electrick. And this he labours to confirm by experiments; for if the strawes be raised by a vigorous Electrick, they doe appear to wave and turn in their ascents. If likewise the Electrick be broad and the strawes light and chaffy, and held at a reasonable distance, they will not arise unto the middle, but rather adhere toward the verge or borders thereof. And lastly, if many strawes be laid together, and a nimble Electrick approach, they will not all arise unto it, but some will commonly start aside and be whirled a reasonable distance from it. Now that the ayre impelled returns unto its place in a giration or whirling, is evident from the Atomes or Moats in the Sun. For when the Sun so enters a hole or window, that by its illumination the Atomes or Moats become perceptible, if then by our breath the ayre be gently impelled, it may be perceived that they will circularly return and in a giration unto their places again.

The way of Sir
Kenelme Digby.

Another way of their attraction is also delivered; that is, by a tenuous emanation or continued effluviūm, which after some distance rerracteth into it self; as is observable in drops of syrups, oyle and seminall viscosities, which spun at length retire into their former dimensions. Now these effluviūms

viums advancing from the body of the Electrick, in their return doe carry back the bodies whereon they have laid hold within the sphear or circle of their continuities; and these they doe not only attract, but with their viscous armes hold fast a good while after. And if any shall wonder why these effluvia issuing forth impell and protrude not the straw before they can bring it back, it is because the effluvium passing out in a smaller thred and more enlengthened filament, it stirreth not the bodies interposed, but returning unto its originall it falls into a closer substance, and carrieth them back unto it self. And this way of attraction is best received, embraced by Sir Kenelme Digby in his excellent Treaty of bodies, allowed by *Des Cartes* in his principles of Philosophy, as farre as concerneth fat and resinous bodies, and with exception of glasse, whose attraction he also deriveth from the recesses of its effluxion. And this in some manner the words of Gilbertus will bear. *Effluvia illa tenuiora concipiunt & amplectuntur corpora, quibus uniuntur, & Electris tanquam extensis brachiis, & ad fontem propinquitate invalescentibus effluviis, deducuntur.* And if the ground were true that the earth were an Electrick body, and the ayre but the effluvium thereof; we might perhaps beleieve that from this attraction and by this effluxion bodies tended to the earth, and could not remain above it.

Our other discourse of Electricks concerneth a generall opinion touching Jet and Amber, that they attract all light bodies, except Ocymum or Basil, and such as be dipped in oyle or oyled; and this is urged as high as Theophrastus: but Scaliger acquitteth him; And had this been his assertion, Pliny would probably have taken it up, who herein stands out, and delivereth no more but what is vulgarly known. But Plutarch speaks positively in his Symposiacks, that Amber attracteth all bodies, excepting Basil and oyled substances. With Plutarch consent many Authors both ancient and modern; but the most inexcusable are Lemnius and Rueus, whereof the one delivering the nature of minerals mentioned in Scripture the infallible fountain of truth, confirmeth their vertues with erroneous traditions; the other undertaking the occult and hidden miracles of Nature, accepteth this for one; and endeavoureth to alledge a reason of that which is more then occult, that is, not existent.

Now herein, omitting the authority of others, as the doctrine of experiment hath informed us, we first affirm, That Amber attracts not Basil, is wholly repugnant unto truth. For if the leaves thereof or dried stalks be stripped into small straws, they arise unto Amber, Wax, and other Electrics, no otherwise then those of Wheat or Rye; nor is there any peculiar fatnesse or singular viscosity in that plant that might cause adhesion and so prevent its ascension. But that Jet and Amber attract not straws oyled, is in part true and false. For if the straws be much wet or drenched in oyle, true it is that Amber draweth them not; for then the oyle makes the straw to adhere unto the part whereon they are placed, so that they cannot rise unto the Attractor; and this is true not only if they be soaked in oyle, but spirits of wine or water. But if we speak of straws or festucous divisions lightly drawn over with oyle, and so that it causeth no adhesion, or if we conceive an antipathy between oyle and Amber, the doctrine is not true. For Amber will attract straws thus oyled; it will convert the Needles of Dials made either of Brasse or Iron, although they be much oyled; for in these Needles consisting free upon their center there can be no adhesion. It will likewise attract oyle it self, and if it approacheth unto a drop thereof, it becometh conicall and ariseth up unto it; for oyle taketh not away his attraction, although it be rubbed over it. For if you touch a piece of wax already excited,

citated, with common oyle, it will notwithstanding attract, though not so vigorously as before. But if you moisten the same with any chymicall oyle, water or spirits of wine, or only breathe upon it, it quite omits its attraction; for either its effluencies cannot get through, or will not mingle with those substances.

It is likewise probable the Ancients were mistaken concerning its substance and generation; they conceiving it a vegetable concretion made of the gums of trees, especially, Pine and Poplar falling into the water, and after indurated or hardened; whereunto accordeth the fable of Phaetons sisters: but surely the concretion is minerall, according as is delivered by Boëtius. For either it is found in mountains and mediterraneous parts; and so it is a fat and unctuous sublimation in the earth, concreted and fixed by salt and nitrous spirits wherewith it meeteth. Or else, which is most usuall, it is collected upon the sea shore; and so it is a fat and bituminous juice coagulated by the salt-ness of the sea. Now that salt spirits have a power to congele and coagulate unctuous bodies, is evident in chymicall operations; in the distillations of Arsenick, sublimate and Antimony; in the mixture of oyl of Juniper, with the salt and acide spirit of Sulphur; for thereupon ensueth a concretion unto the consistence of Birdlime; as also in spirits of salt, or *Aqua fortis* powred upon oyle of Olive, or more plainly in the manufacture of Sope. And many bodies will coagulate upon commixture whose separated natures promise no concretion. Thus upon a solution of Tinne by *Aqua fortis*, there will ensue a coagulation, like that of whites of eggs. Thus the volatile salt of urine will coagulate *Aqua vite*, or spirits of wine; and thus perhaps (as Helmont excellently declareth) the stones or calculous concretions in Kidney or Bladder may be produced: the spirits or volatile salt of urine conjoining with the *Aqua vite* potentially lying therein; as he illustrateth from the distillation of fermented urine. From whence ariseth an *Aqua vite* or spirit, which the volatile salt of the same urine will congele; and finding an earthly concurrence, strike into a lapideous substance.

Lastly, We will not omit what Bellabonus upon his own experiment writ from Dantzich unto Mellichius, as he hath left recorded in his Chapter *De succino*, that the bodies of Flies, Pismires and the like, which are said oft times to be included in Amber, are not reall but representative, as he discovered in severall pieces broke for that purpose. If so, the two famous Epigrams hereof in Martiall are but poeticall, the Pismire of Brassavolus Imaginary, and Cardans Moussoleum for a flie, a meer phancy. But hereunto we know not how to assent, as having met with some whose reals made good their representments.

How the stone is
bred in the kidney
or bladder.

Of a Bee and a
Viper invol-
ved in Amber.
Mart. lib. 4.

Ep. 32. C. 3.
59. of an Amb.
Mart. lib. 6.
Epig. 15.

CHAP. V.

Compendiously of sundry other common Tenents, concerning Minerall and Terreous bodies, which examined, prove either false or dubious.

I. **A**Nd first we hear it in every mouth, and in many good Authors reade it, That a Diamond, which is the hardest of stones, not yeelding unto Steele, Emery, or any thing, but its own powder, is yet made soft, or broke by the blood of a Goat. Thus much is affirmed by Pliny, Solinus, Albertus, Cyprian, Austin, Isidore, and many Christian Writers; alluding herein unto the heart of man, and the precious blood of our Saviour; who was typified indeed by the Goat that was slain, and the scape Goat in the wildernesse; and

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at the effusion of whose blood, not only the hard hearts of his enemies relented, but the stony rocks and vail of the Temple were shattered. But this I perceive is easier affirmed then proved. For Lapidaries, and such as professe the art of cutting this stone, doe generally deny it; and they that seem to countenance it, have in their deliveries so qualified it, that little from thence of moment can be inferred from it. For first, the holy Fathers, without a further enquiry did take it for granted; and rested upon the authority of the first deliverers. As for Albertus, he promiseth this effect, but conditionally, not except the Goat drink wine, and be fed with *Siler montanum, petroselinum*, and such herbs as are conceived of power to break the stone in the bladder. But the words of Pliny from whom most likely the rest at first derived it, if strictly considered, doe rather overthrow, then any way advantage this effect. His words are these: *Hercino rumpitur sanguine, nec aliter quam recenti, calidoque macerata, & sic quoque multis ictibus, tunc etiam præterquam eximias incudes malleosque ferreos frangens.* That is, it is broken with Goats blood, but not except it be fresh and warm, and that not without many blowes; and then also it will break the best Anvills and hammers of Iron. And answerable hereto, is the assertion of Isidore and Solinus. By which account, a Diamond steeped in Goats blood, rather increaseth in hardnesse, then acquireth any softnesse by the infusion; for the best we have are comminable without it; and are so far from breaking hammers, that they submit unto pistillation, and resist not an ordinary pestle.

Upon this conceit arose perhaps the discovery of another; that the blood of a Goat, was sovereign for the Stone, as it stands commended by many good Writers, and brings up the composition in the powder of Nicolaus, and the Electuary of the Queen of Colein: or rather because it was found an excellent medicine for the Stone, and its ability commended by some to dissolve the hardest thereof; it might be conceived by amplifying apprehensions, to be able to break a Diamond; and so it came to be ordered that the Goat should be fed with saxifragous herbs, and such as are conceived of power to break the stone. However it were as the effect is false in the one, so is it surely very doubtfull in the other. For although inwardly received it may be very diuretick, and expulse the stone in the kidneys; yet how it should dissolve or break that in the bladder, will require a further dispute; and perhaps would be more reasonably tried by a warm injection thereof, then as it is commonly used. Wherein notwithstanding, we should rather rely upon the urine in a Castlings bladder; a resolution of Crabs eyes; or the second distillation of urine, as Helmont hath commended; or rather (if any such might be found) a Chilifactory menstruum or digestive preparation drawn from species or individualls, whose stomachs peculiarly dissolve lapideous bodies.

2. That Glasse is poison, according unto common conceit, I know not how to grant. Not only from the innocency of its ingredients, that is, fine sand, and the ashes of glasse-wort of fearn, which in themselves are harmlesse and usefull: or because I finde it by many commended for the Stone; but also from experience, as having given unto doggs above a dram thereof, subtilly powdered in butter or paste, without any visible disturbance.

The conceit is surely grounded upon the visible mischief of Glasse grossely or coarsly powdered; for that indeed is mortally noxious, and effectually used by some to destroy Mice and Rats; for by reason of its acutenesse and angularity, it commonly excoriates the parts through which it passeth, and sollicitis them unto a continuall expulsion. Whereupon there ensues fearfull symptomes, not much unlike those which attend the action of poison. From

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39.53.

Why Glasse is
commonly held to
be poysonous.

whence notwithstanding, we cannot with propriety impose upon it that name, either by occult or elementary quality; which he that concedeth will much enlarge the catalogue or lists of poisons. For many things, neither deleterious by substance or quality, are yet destructive by figure, or some occasionall activity. So are Leeches destructive, and by some accounted poison; not properly, that is by temperamentall contrariety, occult form, or so much as elementall repugnancy; but because being inwardly taken they fasten upon the veins, and occasion an effusion of blood, which cannot be easily stanch'd. So a *sponge* is mischievous; not in it self, for in its powder it is harmlesse; but because being received into the stomach it swelleth, and occasioning a continuall distension, induceth a strangulation. So pins, needles, ears of Rye or Barley, may be poison, So Daniel destroyed the Dragon by a composition of three things, whereof neither was poison alone, nor properly all together, that is, pitch, fat and hair; according as is expressed in the history. Then Daniel took pitch, and fat, and hair, and did seeth them together and made lumps thereof; these he put in the Dragons mouth, and so he burst asunder. That is, the fat and pitch being cleaving bodies, and the hair continually extimulating the parts, by the action of the one, nature was provoked to expell, but by the tenacity of the other forced to retain: so that there being left no passage in or out, the Dragon brake in peeces. It must therefore be taken of grossely-powdered glasse what is delivered by Grevinus; and from the same must that mortall dysentery proceed which is related by Sanctorius. And in the same sense shall we only allow a Diamond to be poison; and whereby as some relate Paracelsus himself was poisoned. And so even the precious fragments and cordiall gems which are of frequent use in Physick, and in themselves confessed of usefull faculties; received in grosse and angular powders, may so offend the bowels, as to procure desperate languors, or cause most dangerous fluxes.

That Glasse may be rendred malleable, and pliable unto the hammer, many conceive, and some make little doubt; when they read in Dio, Pliny and Petronius, that one unhappily effected it for Tiberius. Which notwithstanding must needs seem strange, unto such as consider, that bodies are ductile from a tenacious humidity, which holdeth the parts together; that though they dilate or extend, they part not from each other. That bodies runne into glasse, when the volatile parts are exhaled, and the continuing humour separated: the salt and earth, that is, the fixed parts remaining. And therefore vitrification maketh bodies brittle; as destroying the viscous humours which hinder the disruption of parts. Which may be verified even in the bodies of Mettalls. For glasse of Lead or Tinne is fragile, when that glutinous sulphur hath been fired out, which made their bodies ductile.

He that would most probably attempt it, must experiment upon gold. Whose fixed and flying parts are so conjoined, whose sulphur and continuing principle is so united unto the salt, that some may be hoped to remain to hinder fragility after vitrification. But how to proceed, though after frequent corrosion, as that upon the agency of fire, it should not revive into its proper body, before it comes to vitrifie, will prove no easie discovery.

3 That Gold inwardly taken, either in substance, infusion, decoction or extinction, is a cordiall of great efficacy, in fundry medicall uses, although a practice much used, is also much questioned, and by no man determined beyond dispute. There are hereof I perceive two extream opinions; some excessively magnifying it, and probably beyond its deserts; others extreamly vilifying it, and perhaps below its demerits. Some affirming it a powerfull medicine in many diseases, others averring that so used it is effectually in none;

and

and in this number are very eminent Physicians; Eraſtus, Duretus, Rondeletius, Braſſavolus and many other; who beſide the ſtrigments and ſudorous adheſions from mens hands, acknowledge that nothing proceedeth from gold in the uſuall decoction thereof. Now the capitall reaſon that led men unto this opinion was their obſervation of the inſeparable nature of gold; it being excluded in the ſame quantity as it was received, without alteration of parts, or diminution of its gravity.

Now herein to deliver ſomewhat which in a middle way may be entertained; we firſt affirm, that the ſubſtance of gold is invincible by the powerfulſt action of naturall heat; and that not only alimentially in a ſubſtantiall mutation, but alſo medicamentally in any corporeall converſion; as is very evident, not only in the ſwallowing of golden bullets, but in the leſſer and foliate diviſions thereof, paſſing the ſtomack and guts even as it doth the throat, that is, without abatement of weight or conſiſtence; ſo that it entereth not the veins with thoſe eleſtuaries, wherein it is mixed; but taketh leave of the permeant parts, at the mouthes of the meſeraicks, and accompanieth the inconvertible portion unto the ſiege. Nor is it ſubſtantiall converſion expectible in any compoſition or aliment wherein it is taken. And therefore that was truly a ſtarving abſurdity, which befell the wiſhes of Midas. And little credit there is to be given to the golden Hen, related by Wendlerus. So in the extinction of gold, we muſt not conceive it parteth with any of its ſalt or diſſoluble principle thereby, as we may affirm of Iron; for the parts thereof are fixed beyond diviſion; nor will they ſeparate upon the ſtrongeſt teſt of fire. This we affirm of pure gold; for that which is currant and paſſeth in ſtamp amongſt us, by reaſon of its allay, which is a proportion of ſilver or copper mixed therewith; is actually dequantitated by fire, and poſſibly by frequent extinction.

Secondly, Although the ſubſtance of gold be not ſenſibly immuted or its gravity at all decreaſed, yet that from thence ſome vertue may proceed either in ſubſtantiall reception or infuſion, we cannot ſafely deny. For poſſible it is that bodies may emit vertue and operation without abatement of weight; as is moſt evident in the Loadſtone, whoſe effluencies are continuall, and communicable without a minoration of gravity. And the like is obſervable in bodies electricall, whoſe emissions are leſſe ſubtile. So will a Diamond or Sapphire emit an effluviuſ ſufficient to move the needle or a ſtraw, without diminution of weight. Nor will poliſhed Amber although it ſend forth a groſſe and corporall exhalement, be found a long time defective upon the exacteſt ſcales. Which is more eaſily conceiveable in a continued and tenacious effluviuſ, whereof a great part retreats into its body.

Thirdly, If amulets doe work by emanations from their bodies; upon thoſe parts whereunto they are appended, and are not yet obſerved to abate their weight; if they produce viſible and reall effects by imponderous and inviſible emissions; it may be unjuſt to deny all efficacy of gold; in the non-omission of weight, or deperdition of any ponderous particles.

Laſtly, Since Stibium or glaſſe of Antimony, ſince alſo its Regulus will manifeſtly communicate unto water or wine, a purging and vomatory operation; and yet the body it ſelf, though after iterated infuſions, cannot be found to abate either vertue or weight; I dare not deny but gold may doe the like; that is, impart ſome effluencies unto the infuſion, which carry with them the ſeparable ſubtilties thereof.

That therefore this metall thus received, hath any undeniable effect; we ſhall not imperiouſly determine; although beſide the former experiments, many more may induce us to beleieve it. But ſince the point is dubious, and

ſo quickliuſ ſhaken in
Glaſſe, water, &c. ſo far water
an lower legs than the
water &c. it ſimiliſ a little legs
ſhew, w^{ch} Dr. Ridgley, M.D.
uſed for worms in children.

not yet authentically decided, it will be no discretion to depend on disputable remedies; but rather in cases of known danger, to have recourse unto medicines of known and approved activity. For, beside the benefit accruing unto the sick, hereby may be avoided a grosse and frequent error, commonly committed in the use of doubtfull remedies, conjointly with those which are of approved vertues; That is, to impute the cure unto the conceited remedy, or place it on that whereon they place their opinion. Whose operation although it be nothing, or its concurrence not considerable; yet doth it obtain the name of the whole cure; and carrieth often the honour of the capitall energie, which had no finger in it.

Herein exact and criticall triall should be made by publike enjoiment; whereby determination might be settled beyond debate: for since thereby, not only the bodies of men, but great Treasures might be preserved, it is not only an error of Physick, but folly of State, to doubt thereof any longer.

4. That a pot full of ashes, will still contain as much water as it would without them, although by Aristotle in his problems taken for granted, and so received by most, is not effectible upon the strictest experiment I could ever make. For when the airy interstices are filled, and as much of the salt of the ashes as the water will imbibe is dissolved; there remains a grosse and terreous portion at the bottome; which will possesse a space by it self; according whereto there will remain a quantity of water not receivable; so will it come to passe in a pot of salt, although decrepitated; and so also in a pot of snow. For so much it will want in reception, as its solution taketh up; according unto the bulk whereof, there will remain a portion of water not to be admitted. So a glasse stuffed with pieces of sponge, will want about a sixth part of what it would receive without it. So Sugar will not dissolve beyond the capacity of the water; nor a mettall in *Aqua fortis* be corroded beyond its reception. And so a pint of salt of tartar exposed unto a moist aire untill it dissolve, will make far more liquor, or as some term it oyle, then the former measure will contain.

Nor is it only the exclusion of ayre by water, or repletion of cavities possessed thereby, which causeth a pot of ashes to admit so great a quantity of water, but also the solution of the salt of the ashes into the body of the dissolvent. So a pot of ashes will receive somewhat more of hot water then of cold; for as much as the warm water imbibeth more of the salt; and a vessell of ashes more then one of pindust or filings of Iron; and a glasse full of water, will yet drink in a proportion of salt or sugar without overflowing.

Nevertheless to make the experiment with most advantage, and in which sense it approacheth nearest the truth, it must be made in ashes thoroughly burnt, and well reverberated by fire, after the salt thereof hath been drawn out by iterated decoctions. For then the body being reduced nearer unto earth, and emptied of all other principles, which had former ingression unto it, becometh more porous, and greedily drinketh in water. He that hath beheld what quantity of lead the test of saltlesse ashes will imbibe, upon the refining of Silver; hath encouragement to think it will doe very much more in water.

5. Of white powder and such as is discharged without report, there is no small noise in the world: but how far agreeable unto truth, few I perceive are able to determine. Herein therefore to satisfie the doubts of some, and amuse the credulity of others, We first declare; that Gunpowder consisteth of three ingredients, Salt-peter, Smal-coal, and Brimstone. Salt-peter, although it be also naturall and found in severall places, yet is that of common use an artificiall

then shot, is surely not to be made out; for it will scarce make any penetration, and discharged from a Pistoll, will hardly pierce thorow a parchment. That vineger, spirits of wine, or the distilled water of Orange pilles, where-with the powder is tempered, are more effectually unto the report then common water, as some doe promise, I shall not affirm; but may assuredly more conduce unto the preservation and durance of the powder, as Cataneo hath well observed.

That the heads of arrows and bullets have been discharged with that force, as to melt or grow red hot in their flight, though commonly received, and taken up by Aristotle in his meteors, is not so easily allowable by any, who shall consider; that an arrow or bullet discharged against linen or paper doe not set them on fire, and hardly apprehend how an Iron should grow red hot, since the swiftest motion at hand will not keep one red that hath been made red by fire; as may be observed in swinging a red hot Iron about, or fastening it into a wheel; which under that motion will sooner grow cold then without it. That a bullet also mounts upward upon the horizontall or point blank discharge, many Artists doe not allow: who contend that it describeth a parabolicall and bowing line, by reason of its naturall gravity inclining it alwaies downward.

But, beside the prevalence from Salt-peter, as Master-ingredient in the mixture; Sulphur may hold a greater use in the composition and further activity in the exclusion, then is by most conceived. For Sulphur vive makes better powder then common Sulphur, which neverthelesse is of a quick accension. For Small-coale, Salt-peter and Camphire made into powder will be of little force, wherein notwithstanding there wants not the accending ingredient. And Camphire though it flame well, yet will not flush so lively, or defecate Salt-peter, if you inject it thereon, like Sulphur, as in the preparation of *Sal prunella*. And lastly, though many waies may be found to light this powder, yet is there none I know to make a strong and vigorous powder of Salt-peter; without the admixtion of Sulphur. Arsenick red and yellow, that is Orpement and Sandarach may perhaps doe something, as being inflamable and containing Sulphur in them; but containing also a salt, and mercuriall mixtion, they will be of little effect; and white or Crystalline arsenick of lesse; for that being artificiall, and sublimed with salt, will not endure flamation.

This antipathy or contention between Salt-peter and Sulphur upon an actual fire, in their compleat and distinct bodies, is also manifested in their preparations, and bodies which invisibly contain them. Thus is the preparation of *Crocus Metallorum*; the matter kindleth and flusheth like Gunpowder; wherein notwithstanding, there is nothing but Antimony and Salt-peter. But this proceedeth from the Sulphur of Antimony, not enduring the society of Salt-peter; for after three or four accensions, through a fresh addition of peter, the powder will flush no more; for the Sulphur of the Antimony is quite exhaled. Thus Iron in *Aqua fortis* will fall into ebullition, with noise and emication, as also a crasse and fumid exhalation; which are caused from this combat of the Sulphur of Iron, with the acide and nitrous spirits of *Aqua fortis*. So is it also in *Aurum fulminans*, or powder of gold dissolved in *Aqua Regis*, and precipitated with oyle of Tartar, which will kindle without an actual fire, and afford a report like Gunpowder; that is, not as Crollius affirmeth from any Antipathy between *Sal Armoniac* and Tartar, but rather between the nitrous spirits of *Aqua Regis*, commixed *per minima* with the Sulphur of Gold, as Sennertus hath well observed.

*Cat. avvertimenti
intorno a un
Bombardiero.*

*De consensu
Chymicorum,
&c.*

In the French
Copy.

How Corall of a
plant becomes a
stone.

Of what matter
the China dishes
be made.

6. That Corall (which is a Lithophyton or stone plant, and groweth at the bottome of the Sea) is soft under water, but waxeth hard in the ayre, although the assertion of Dioscorides, Pliny, and consequently Solinus, Isidore, Rueus, and many others, and stands beleev'd by most, we have some reason to doubt; not only from so sudden a petrification and strange induration, not easily made out from the qualities of ayre; but because we finde it rejected by experimentall enquiries. Johannes Beguinus in his Chapter of the tincture of Corall, undertakes to clear the world of this error, from the expresse experiment of *John Baptista de Nicole*, who was Overseer of the gathering of Corall upon the Kingdome of Thunis. This Gentleman, saith he, desirous to finde the nature of Corall, and to be resolved how it groweth at the bottome of the Sea; caused a man to go down no lesse then a hundred fathom into the Sea, with expresse to take notice whether it were hard or soft in the place where it groweth; who returning brought in each hand a branch of Corall, affirming it was as hard at the bottome, as in the ayre where he delivered it. The same was also confirmed by a triall of his own, handling it a fathome under water before it felt the ayre. *Boetius* in his accurate Tract *De Gemmis*, is of the same opinion; not ascribing its concretion unto the ayre, but the coagulating spirits of salt, and lapidificall juyce of the Sea, which entering the parts of that plant, overcomes its vegetability, and converts it into a lapideous substance. And this, saith he, doth happen when the plant is ready to decay; for all Corall is not hard, and in many concreted plants some parts remain unpetrified, that is, the quick and livelier parts remain as wood, and were never yet converted. Now that plants and ligneous bodies may indurate under water without approachment of ayre, we have experiment in Coralline, with many Coralloidall concretions; and that little stony plant which Mr Johnson nameth, *Hippuris coralloides*, and *Gesner foliis mansu Arenosis*, we have found in fresh water; which is the lesse concretive portion of that element. We have also with us the visible petrification of wood in many waters; whereof so much as is covered with water converteth into stone; as much as is above it and in the ayre, retaineth the form of wood, and continueth as before.

7. We are not thoroughly resolved concerning Porcellane or China dishes, that according to common belief they are made of earth, which lieth in preparation about an hundred years under ground; for the relations thereof are not only divers, but contrary; and Authors agree not herein. Guido Pancirollus will have them made of Egge shels, Lobster shels, and Gypsum laid up in the earth the space of 80. years: of the same affirmation is Scaliger, and the common opinion of most. Ramuzius in his Navigations is of a contrary assertion; that they are made out of earth, not laid under ground, but hardened in the Sun and winde, the space of fourty years. But Gonzales de *Mendoza*, a man employed into Chyna, and with an honourable present, sent from Philip the second King of Spain, hath upon ocular experience, delivered a way different from all these. For enquiring into the artifice thereof, he found they were made of a Chalky earth; which beaten and steeped in water, affordeth a cream or fatnesse on the top, and a grosse subsidence at the bottome; out of the cream or superfluitance, the finest dishes, saith he, are made; out of the residue thereof the courser; which being formed, they gild or paint, and not after an hundred years, but presently commit unto the furnace. This, saith he, is known by experience, and more probable then what *Odoardus Barbosa* hath delivered; that they are made of shels, and buried under earth a hundred years. And answerable in all points hereto, is the relation of *Linschotten*, a diligent enquirer, in his Orientall Navigations. Later confirmation

firmation may be had from Alvarez the Jesuit, who lived long in those parts; in his relations of China. That Porcellane vessels were made but in one Town of the Province of Chiamfi: That the earth was brought out of other Provinces, but for the advantage of water, which makes them more polite and perspicuous, they were only made in this. That they were wrought and fashioned like those of other countries, whereof some were tinted blew, some red, others yellow, of which colour only they presented unto the King.

Now if any enquire, why being so commonly made, and in so short a time, they are become so scarce, or not at all to be had? The answer is given by these last Relators, that under great penalties it is forbidden to carry the first sort out of the Countrey. And of those surely the properties must be verified, which by Scaliger and others are ascribed to China dishes, That they admit no poyson, That they strike fire, That they will grow hot no higher then the liquor in them ariseth. For such as passe amongst us, and under the name of the finest, will only strike fire, but not discover Aconite, Mercury, or Arsenick; but may be usefull in dysenteries and fluxes beyond the other.

8. Whether a Carbuncle (which is esteemed the best and biggest of Rubies) doth flame in the dark, or shine like a coale in the night, though generally agreed on by common beleivers, is very much questioned by many. By Milius; who accounts it a vulgar error: By the learned Boetius; who could not finde it verified in that famous one of Rodulphus, which was as big as an Egge, and esteemed the best in Europe. Wherefore although we dispute not the possibility, whether herein there be not too high an apprehension, and above its naturall radiancy, is not without just doubt: however it be granted a very splendid gem, and whose sparkes may somewhat resemble the glances of fire; and metaphorically deserve that name. And therefore when it is conceived by some that this stone in the Brest-plate of Aaron respected the tribe of Dan, who burnt the City of Laish; and Sampson of the same tribe, who fired the corn of the Philistims; in some sense it may be admitted, and is no intollerable conception.

As for that Indian Stone, that shined so brightly in the night, and pretended to have been shewn to many in the Court of France, as Andreas Chioccus hath declared out of Thuanus; it proved but an imposture, as that eminent Philosopher Licetus hath discovered; and therefore in the revised editions of Thuanus, it is not to be found. And for the Phosphorus or Bononian Stone, which exposed unto the Sunne, and then closely shut up, will afterward afford a light in the dark; it is of unlike consideration, for that requireth calcination, or reduction into a dry powder by fire; whereby it imbibeth the light in the vaporous humidity of the ayre about it; and therefore maintaineth its light not long, but goes out when the vaporous vehicle is consumed.

9. Lastly, He must have more heads then Rome had hills, that makes out half of those vertues ascribed unto stones, and their not only Medicall, but Magicall proprieties, which are to be found in Authors of great name. In Psellus, Serapion, Evax, Albertus, Aleazar, Marbodeus; in Maiolus, Rueus, Mylius, and many more.

That Lapis Lasuli hath in it a purgative faculty we know; that Bezoar is Antidotall, Lapis Judaicus diureticall, Corall Antepilepticall, we will not deny. That Cornelians, Jaspis, Heliotropes, and Bloudstones, may be of vertue to those intentions they are implied, experience and visible effects will make us grant. But that an Amethyst prevents inebriation; that an

M

Emerald

*Licet. de quest.
per Epistolas.*

*Licet. de lapide
Bononienfi.*

*Against poison.
Provoking u-
rine.
Against the
falling sickness.*

Emerald will break if worn in copulation. That a Diamond laid under the pillow, will betray the incontinency of a wife. That a Sapphire is preservative against enchantments; that the fume of an Agath will avert a tempest, or the wearing of a Cryoprase make one out of love with gold; as some have delivered, we are yet, I confesse, to beleave, and in that infidelity are likely to end our daies. And therefore, they which in the explication of the two Beryls upon the Ephod, or the twelve stones in the Rationall or breast-plate of Aaron, or those twelve which garnished the wall of the holy City in the Apocalyps, have drawn their significations from such as these; or declared their symbollicall verities from such traditionall falsities; have surely corrupted the sincerity of their Analogies, or misunderstood the mystery of their intentions.

CHAP. VI.

Of sundry Tenents concerning vegetables or Plants, which examined, prove either false or dubious.

1. **M**Any Mola's and false conceptions there are of Mandrakes, the first from great Antiquity, conceiveth the root thereof resembleth the shape of man, which is a conceit not to be made out by ordinary inspection, or any other eyes, then such as regarding the clouds, behold them in shapes conformable to preapprehensions.

Now what ever encouraged the first invention, there have not been wanting many waies of its promotion. The first a Catachresticall and farre derived similitude, it holds with man; that is, in a bifurcation or division of the root into two parts, which some are content to call thighs; whereas notwithstanding they are oft times three, and when but two, commonly so complicated and crossed, that men for this deceit, are fain to effect their design in other plants; And as fair a resemblance is often found in Carrots, Parsenips, Bryony, and many others. There are, I confesse, divers plants which carry about them, not only the shape of parts, but also of whole animals, but surely not all thereof, unto whom this conformity is imputed. Whoever shall peruse the signatures of Crollius, or rather the Phytognomy of Porta, and strictly observe how vegetable realities, are commonly forced into Animall representations, may easily perceive in very many, the semblance is but postulatory; and must have a more assimilating phancy then mine to make good many thereof.

Illiterate heads have been led on by the name; which in the first syllable expresseth its representation; but others have better observed the laws of Etymology, and deduced it from a word of the same language, that is, *μάνδρα*, *spelunca*, because it delighteth to grow in obscure and shady places; which derivation, although we shall not stand to maintain, yet is the other openly absurd, answerable unto the Etymologies of many Authors, who often confound such nominall notations. Not to enquire beyond our own profession, the Latine Physicians which most adhered unto the Arabick way, have often failed herein; particularly Valescus de Tarranta a received Physician, in whose Philonium or medicall practice these may be observed; *Diarhaa*, saith he, *quia pluries venit in die*. *Herisepela*, *quasi herens pilis*, *Emorrohois*, *ab emach sanguis & morrhois quod est cadere*. *Lithargia* à *Litos* quod est oblitio & *Targus* morbus, *Scotomia* à *Scotus* quod est videre, & *mias musca*. *Ophthalmia* ab

Now parallels or like relations alternately relevee each other ; when neither will passe afunder, yet are they plausible together, their mutuall concurrences supporting their solitary instabilities.

Signaturists have somewhat advanced it ; who seldome omitting what Ancients delivered ; drawing into inference received distinctions of sex, not willing to examine its humane resemblance, and placing it in the form of strange and magicall simples, have made men suspect there was more therein, then ordinary practice allowed ; and so became apt to embrace whatever they heard or read conformable unto such conceptions.

Lastly, The conceit promoteth it self : for concerning an effect whose triall must cost so dear, it fortifies it self in that invention ; and few there are whose experiment it need to fear. For (what is most contemptible) although not only the reason of any head, but experience of every hand may well convict it, yet will it not by divers be rejected ; for prepossessed heads will ever doubt it, and timorous beliefs will never dare to try it. So these traditions how low and ridiculous soever, will finde suspicion in some, doubt in others, and serve as tests or trialls of melancholy, and superstitious tempers for ever.

2. That Cinamon, Ginger, Clove, Mace and Nutmeg, are but the severall parts and fruits of the same tree, is the common belief of those which daily use them ; whereof to speak distinctly ; Ginger is the root of neither tree nor shrub, but of an herbaceous plant, resembling the water flower De luce, as Garcias first described ; or rather the common reed, as Lobelius since affirmed ; very common in many parts of India, growing either from root or seed, which in December and January they take up, and gently dried, role it up in earth ; whereby occluding the pores, they conserve the naturall humidity, and so prevent corruption.

Cinnamon is the inward bark of a Cinnamon tree, whereof the best is brought from Zeilan ; this freed from the outward bark, and exposed unto the Sun, contracts into those folds wherein we commonly receive it. If it have not a sufficient insolation it looketh pale, and attains not its laudable colour ; if it be sunned too long it suffereth a torrefaction, and descendeth somewhat below it.

Clove seems to be the rudiment or beginning of a fruit growing upon the Clove tree ; to be found but in few Countries. The most commendable is that of Isles of Molucca ; it is first white, afterward green, which beaten down, and dried in the Sun, becometh black, and in the complexion we receive it.

Nutmeg is the fruit of a tree differing from all these, and as Garcias describeth it, somewhat like a Peach ; growing in divers places, but fructifying in the Isle of Banda. The fruit hereof, consisteth of four parts ; the first or outward part is a thick and carnos covering like that of a Walnut. The second a dry and flosculous coat commonly called Mace. The third a harder tegument or shell, which lyeth under the Mace. The fourth a kernell included in the shell, which is the same we call Nutmeg. All which both in their parts and order of disposure, are easily discerned in those fruits, which are brought in preserves unto us.

Now if because Mace and Nutmegs proceed from one tree, the rest must bear them company ; or because they are all from the East-Indies, they are all from one plant ; the Inference is precipitous ; nor will there such a plant be found in the Herball of Nature.

3. That Viscus Arboreus or Mistletoe is bred upon trees, from seeds which birds, especially Thrushes and Ringdoves let fall thereon, was the creed of

That Cinamon, Ginger, Clove, &c. are not of the same tree.

Ginger.

Cinnamon

Clove.

Nutmeg.

Mace.

Mistletoe.

the Ancients, and is still beleevd among us; is the account of its production, set down by Pliny, delivered by Virgil, and subscribed by many more. If so, some reason must be assigned, why it groweth only upon certain trees, and not upon many whereon these birds doe light. For as Exotick observers deliver, it groweth upon Almond trees, Chestnut, Apples, Oakes and Pine trees. As we observe in England, very commonly upon Apple, Crabs and White thorn; sometimes upon Sallow, Hasell and Oake: rarely upon Ash and Maple; never, that I could observe, upon Holly, Elme, and many more. Why it groweth not in all countries and places where these birds are found; for so Brassavolus affirmeth, it is not to be found in the territory of Ferrara; and was fain to supply himself from other parts of Italy. Why if it ariseth from a seed, if sown it will not grow again, as Pliny affirmeth, and as by setting the berries thereof, we have in vain attempted its production; why if it cometh from seed that falleth upon the tree, it groweth often downwards, and puts forth under the bough, where seed can neither fall nor yet remain. Hereof beside some others, the Lord Verulam hath taken notice. And they surely speak probably who make it an arboreous excrecence, or rather superplant, bred of a viscus and superfluous sappe which the tree it self cannot assimilate; and therefore sprouteth not forth in boughs and furcles of the same shape, and similiary unto the tree that beareth it; but in a different form, and secondary unto its specificall intention; wherein once failing, another form succeedeth, and in the first place that of Misseltow, in plants and trees disposed to its production. And therefore also where ever it groweth, it is of constant shape, and maintains a regular figure; like other supercrescences, and such as living upon the stock of others, are termed Parasiticall plants, as Polypody, Mosse, the smaller Capillaries, and many more: So that severall regions produce severall Misseltoes; India one, America another, according to the law and rule of their degenerations.

Now what begot this conceit, might be the enlargement of some part of truth contained in its story. For certain it is, that some birdes doe feed upon the berries of this vegetable, and we meet in Aristotle with one kinde of Thrush called the missell Thrush or feeder upon misseltow. But that which hath most promoted it, is a received proverb, *Turdus sibi malum cacat*; Applicable unto such men as are authors of their own misfortune: For according unto ancient tradition and Plinies relation, the bird not able to digest the fruit whereon she feedeth, from her inconverted muting, ariseth this plant; of the berries whereof birdlime is made, wherewith she is after entangled. But although proverbs be popular principles, yet is not all true that is proverbiall; and in many thereof there being one thing delivered, and another intended; though the verball expression be false, the proverb is true enough in the verity of its intention.

As for the Magicall vertues in this plant, and conceived efficacy unto veneficall intentions, it seemeth a Pagan relique derived from the ancient Druides, the great admirers of the Oake, especially the Misseltow that grew thereon; which according unto the particular of Pliny, they gathered with great solemnity. For after sacrifice the priest in a white garment ascended the tree, cut down the Misseltow with a golden hook, and received it in a white coat; the vertue whereof was to resist all poysons, and make fruitfull any that used it. Vertues not expected from Classicall practice; And did they answer their promise which are so commended, in Epilepticall intentions; we would abate these qualities. Countrey practice hath added another, to provoke the after-birth, and in that case the decoction is given unto Cowes. That the berries are

What the Misseltow in some trees is.

120.

isobis.

Proverbs.

76.
Paganish superstition about the Misseltow of the Oake.

are poyson as some conceive, we are so far from averring, that we have safely given them inwardly; and can confirm the experiment of Brassavolus, that they have some purgative quality.

4. The Rose of Jericho, that flourishes every year just upon Christmas Eve is famous in Christian reports; which notwithstanding we have some reason to doubt; and are plainly informed by Bellonius, it is but a Monasticall imposture, as he hath delivered in his observations, concerning the plants in Jericho. That which promoted the conceit, or perhaps begot its continuance, was a propriety in this plant. For though it be dry, yet will it upon imbibition of moisture dilate its leaves, and explicate its flowers contracted, and seemingly dried up. And this is to be effected not only in the plant yet growing, but in some manner also in that which is brought exsuccous and dry unto us. Which quality being observed, the subtilty of contrivers did commonly play this shew upon the Eve of our Saviours Nativity; when by drying the plant again, it closed the next day, and so pretended a double mystery: referring unto the opening and closing of the womb of Mary.

There wanted not a specious confirmation from a text in Ecclesiasticus, chap. 24. *Quasi palma exaltata sum in Cades, & quasi plantatio Rosa in Jericho*: I was exalted like a Palme tree in Engaddi, and as a Rose in Jericho. The sound whereof in common eares, begat an extraordinary opinion of the Rose of that denomination. But herein there seemeth a great mistake; for by the Rose in the text, is implied the true and proper Rose; *ῥόδον ὡς ῥόδον* saith the Greek, and ours accordingly rendreth it. But that which passeth under this name, and by us is commonly called the Rose of Jericho, is properly no Rose, but a small thorny shrub or kinde of heath, bearing little white flowers, farre differing from the Rose; whereof Bellonius a very inquisitive Herbalist could not finde any in his travells thorow Jericho. A plant so unlike a Rose, it hath been mistaken by some good Simplist for Amomum; which truly understood is so unlike a Rose, that as Dioscorides delivers, the flowers thereof, are like the white violet, and its leaves resemble Bryonie.

Sutable unto this relation almost in all points is that of the thorn at Glasfenbury, and perhaps the daughter thereof; herein our endeavours as yet have not attained satisfaction, and cannot therefore enlarge. Thus much in generall we may observe, that strange effects, are naturally taken for miracles by weaker heads; and artificially improved to that apprehension by wiser. Certainly many precocious trees, and such as have their spring in the winter, may be found in most parts of Europe, and divers also in England. For most trees doe begin to sprout in the fall of the leaf or Autumne, and if not kept back by cold and outward causes, would leaf about the Solstice. Now if it happen, that any be so strongly constituted, as to make this good against the power of winter, they may produce their leaves or blossomes in that season, and perform that in some singles, which is observable in whole kindes, as is observable in Ivy, which blossomes and beares at least twice a year, and once in the winter; as also in Furze which flowreth in that season.

5. That *ferrum Equinum*, or *Sferra Cavallo* hath a vertue attractive of Iron, a power to break locks, and draw off the shooes of a horse that passeth over it; whether you take it for one kinde of *Securidaca*, or will also take in *Lunaria*, we know it to be false: And cannot but wonder at Mathiolus, who upon a parallell in Pliny was staggered into suspension; notwithstanding in the imputed vertue to open things, close and shut up, could laugh himself

at

Rose of Jericho.

Thorn at Glasfenbury.

Such a thorn
there is in Par-
ham Park in
Suffolk.

Vid: 824

at that promise from the herb *Æthiopis* or *Æthiopian mullen*; and condemn the judgement of *Scipio*, who having such a picklock, would spend so many years in battering the gates of *Carthage*. Which strange and Magicall conceit, seems to have no deeper root in reason, then the figure of its seed; for therein indeed it somewhat resembles an horseshoe; which notwithstanding *Baptista Porta* hath thought too low a signation, and raised the same unto a Lunary representation.

6. That Bayes will protect from the mischief of lightning and thunder, is a quality ascribed thereto, common with the figtree, *Ægle*, and skin of a Seale. Against so famous a quality, *Vicomercatus* produceth experiment of a Bay tree blasted in Italy; and therefore although *Tiberius* for this intent, did wear a Laurell about his temples; yet did *Augustus* take a more probable course, who fled under arches and hollow vaultes for protection. And though *Porta* conceive, because in a streperous eruption, it riseth against fire, it doth therefore resist lightning, yet is that no emboldning Illation: And if we consider the threefold effect of *Jupiters Trisulc*, to burn, discusse and terebrate; and if that be true which is commonly delivered, that it will melt the blade, yet passe the scabbard, kill the childe, yet spare the mother, dry up the wine, yet leave the hogshead intire; though it favour the amulet it may not spare us; it will be unsure to rely on any preservative; 'tis no security to be dipped in *Styx*, or clad in the armour of *Ceneus*. Now that beer, wine and other liquors, are spoiled with lightning and thunder, we conceive it proceeds not only from noise and concussion of the ayre, but also noxious spirits, which mingle therewith, and draw them to corruption; whereby they become not only dead themselves, but sometime deadly unto others, as that which *Seneca* mentioneth; whereof whosoever drank, either lost his life, or else his wits upon it.

7. It hath much deceived the hopes of good fellows, what is commonly expected of bitter Almonds, and though in *Plutarch* confirmed from the practice of *Claudius* his Physitian, that *Antidote* against ebriety hath commonly failed. Surely men much versed in the practice doe erre in the theory of inebriation; conceiving in that disturbance the brain doth only suffer from exhalations and vaporous ascensions from the stomach, which fat and oylie substancies may suppress; whereas the prevalent intoxication is from the spirits of drink dispersed into the veynes and arteries; from whence by common conveyances they creep into the brain, insinuate into its ventricles, and beget those vertiges, accompanying that perversion. And therefore the same effect may be produced by a Glister; the head may be intoxicated by a medicine at the heele. And so the poysonous bites of Serpents, although on parts at distance from the head, yet having entered the veynes, disturb the animall faculties, and produce the effects of drink, or poyson swallowed. And so as the head may be disturbed by the skin, it may the same way be relieved; as is observable in balneations, washings, and fomentations, either of the whole body, or of that part alone.

How beer and wine come to be spoiled by lightning.

229.†

Bayon says in
Ephes. 7. 26. f.
wondering
at the drinkings

Dis. Nat. Hist. S.
O. or M. P. R.
How drinks in-
toxicate or over-
come men.

CHAP. VII.

Of Insects, and the properties of severall plants.

1. **T**He presage of the year succeeding, which is commonly made from Insects or little animals in Oak-apples, according to the kindes thereof, either Maggot, Flye or Spider; that is, of Famine, Warre or Pestilence; whether we mean that woody excrescence, which shooteth from the branch about May, or that round and Apple-like accretion, which groweth under the leaf, about the later end of Summer, is I doubt too distinct, nor verifiable from event.

For Flies and Maggots are found every year; very seldome Spiders: And Helmont affirmeth he could never finde the Spider and the Flye upon the same tree; that is, the signes of Warre and Pestilence, which often go together. Beside, that the Flies found were at first Maggots, experience hath informed us: for keeping these excrescencies, we have observed their conversions; beholding in magnifying glasses the daily progression thereof. As may be also observed in other vegetable excretions; whose Maggots doe terminate in Flies of constant shapes; as in the Nutgalls of the outlandish Oake, and the mossie tuft of the wilde briar; which having gathered in November, we have found the little Maggots which lodged in wooden cels all Winter, to turn into Flies in June.

We confesse the opinion may hold some verity in the Analogy, or emblematicall phancy. For Pestilence is properly signified by the Spider, whereof some kindes are of a very venomous nature. Famine by Maggots, which destroy the fruits of the earth. And Warre not improperly by the Flye; if we rest in the phancy of Homer, who compares the valiant Grecian unto a Flye.

Some verity it may also have in it self, as truly declaring the corruptive constitution in the present sap and nutrimentall juice of the tree, and may consequently discover the disposition of that year, according to the plenty or kindes of these productions. For if the putrifying juices of bodies, bring forth plenty of Flies and Maggots, they give testimony of common corruption, and declare that the elements are full of the seeds of putrefaction; as the great number of Caterpillars, Gnats and ordinary Insects doe also declare. If they runne into Spiders, they give signes of higher putrefaction, as plenty of Vipers and Scorpions are confessed to doe; the putrefying materials producing animals of higher mischeifs, according to the advance and higher strain of corruption.

Abundance of
Flies, Maggots, &c
what they may
naturally signifie.

2. Whether all plants have seed, were more easily determinable, if we could conclude concerning Harts-tongue, Ferne, the Capillaries and some others. But whether those little dusty particles, upon the lower side of the leaves, be seeds and seminall parts; or rather, as it is commonly conceived, excrementall separations; we have not been able to determine by any germination or univocall production from them. Thus much we observe, that they seem to renew yearly, and come not fully out till the plant be in its vigour, and by the help of magnifying glasses we finde these dusty atomes to be round at first, and fully representing seeds; out of which proceed little mites almost invisible; so that such as are old stand open, as being emptied of some bodies formerly included, which though discernable in Harts-tongue, is notoriously discoverable in some differences of Brake or Ferne.

N

3. Whe-

218. 49. 4.

3. Whether the sap of trees runnes down to the roots in Winter, whereby they become naked and grow not; or whether they doe not cease to draw any more, and reserve so much as sufficeth for conservation, is not a point indubitable: For we observe, that most trees, as though they would be perpetually green, doe bud at the fall of the leaf; although they sprout not much forward untill the spring, and warmer weather approacheth; and many trees maintain their leaves all Winter, although they seem to receive very small advantage in their growth. But that the sap doth powerfully rise in the Spring, to repair that moisture whereby they barely subsisted in the Winter, and also to put the plant in a capacity of fructification; he that hath beheld how many gallons of water may in a small time be drawn from a birch tree in the spring, hath slender reason to doubt.

101

4. That Camphire or Eunuchates begets in men an impotency unto venery, observation will hardly confirm and we have found it to fail in Cocks and Hens, though given for many daies, which was a more favourable triall then that of Scaliger, when he gave it unto a Bitch that was proud. For the instant turgescence is not to be taken off, but by medicines of higher natures, and with any certainty but one way that we know, which notwithstanding, by suppressing that naturall evacuation, may incline unto madnesse, if taken in the Summer.

5. In the history of prodigies we meet with many showers of wheat; how true or probable, we have not room to debate: only thus much we shall not omit to inform, That what was this year found in many places, and almost preached for wheat rained from the clouds; was but the seed of Ivy berries, which somewhat represent it, and though it were found in Steeples and high places, might be conveyed thither, or muted out by birds: for many feed thereon, and in the crops of some we have found no lesse then three ounces.

6. That every plant might receive a name according unto the disease it cureth, was the wish of Paracelsus. A way more likely to multiply Empericks then Herbalists; yet what is practised by many is advantageous unto neither; that is, relinquishing their proper appellations, to re-baptise them by the name of Saints, Apostles, Patriarchs and Martyres; to call this the herb of John, that of Peter, this of James or Joseph, that of Mary or Barbara. For hereby apprehensions are made additionall unto their proper natures; whereon superstitious practices ensue; and stories are framed accordingly to make good their foundations.

7. We cannot omit to declare the grosse mistake of many in the nominall apprehension of plants; to instance but in few. An herb there is commonly called *Betonica Pauli*, or Pauls Betony; hereof the people have some conceit in reference to S. Paul; whereas indeed that name is derived from *Paulus Aegineta*, an ancient Physitian of Aegina, and is no more then Speed-well, or Fluellen. The like expectations are raised from *Herba Trinitatis*; which notwithstanding obtaineth that name from the figure of its leaves, and is one kinde of Liverwort or Hepatica. In *Milium Solis*, the epithete of the Sunne hath enlarged its opinion; which hath indeed no reference thereunto, it being no more then *Lithospermon*, or Grummell, or rather *Milium Soler*; which as Serapion from Aben Juliel hath taught us, because it grew plentifully in the mountains of Soler, received that appellation. In Jews-eares something is conceived extraordinary from the name, which is in propriety but *Fungus sambucinus*, or an excrescence about the roots of Elder, and concerneth not the Nation of the Jewes, but Judas Iscariot, upon a conceit, he hanged on this tree; and is become a fa-

Why the Jews-eare
is used for sore
throats, 309.

a famous medicine in Quinsies, sore throats, and strangulations ever since. And so are they deceived in the name of Horse-raddish, Horse-mint, Bull-rush, and many more: conceiving therein some prenominal consideration; whereas indeed that expression is but a Grecisme; by the prefix of Hippos and Bous, that is, Horse and Bull, intending no more then great. According whereto the great dock is called Hippolapathum; and he that calls the horse of Alexander, Great head, expresseth the same which the Greeks doe in Bucephalus.

8. Lastly, Many things are delivered and beleaved of other plants, wherein at least we cannot but suspend. That there is a property in Basil to propagate Scorpions, and that by the smell thereof they are bred in the brains of men, is much advanced by Hollerius, who found this insect in the brains of a man that delighted much in this smell. Wherein beside that we finde no way to conjoin the effect unto the cause assigned; herein the Modernes speak but timerously, and some of the Ancients quite contrarily. For, according unto Oribasius, Physitian unto Julian, The Affricans, men best experienced in poisons, affirm, whosoever hath eaten Basil, although he be stung with a Scorpion, shall feel no pain thereby: which is a very different effect, and rather antidotally destroying then feminally promoting its production.

That the leaves of Cataputia or spurge being plucked upward or downward respectively perform their operations by purge or vomit, as some have written, and old wives still doe preach, is a strange conceit, ascribing unto plants positionall operations, and after the manner of the Loadstone; upon the pole whereof if a knife be drawn from the handle unto the point, it will take up a needle; but if drawn again from the point to the handle, it will attract it no more.

That Cucumbers are no commendable fruits, that being very waterish, they fill the veins with crude and windy serosities; that containing little salt or spirit, they may also debilitate the vitall acidity, and fermentall faculty of the stomach, we readily concede. But that they should be so cold, as be almost poison by that quality, it will be hard to allow, without the contradiction of Galen; who accounteth them cold but in the second degree, and in that classis have most Physitians placed them.

That Elder berries are poison, as we are taught by tradition, experience will unteach us. And beside the promises of Blochwitzius, the healthfull effects thereof daily observed will convict us.

That an Ivy cup will separate wine from water, if filled with both, the wine soaking through, but the water still remaining, as after Pliny many have averred, we know not how to affirm; who making triall thereof, found both the liquors to soak indistinctly through the bowle.

That Ros solis which rotteth sheep, hath any such cordiall vertue upon us, we have some reason to doubt.

That Flos Affricanus is poison, and destroyeth dogs, in two experiments we have not found.

That Yew and the berries thereof are harmlesse, we know.

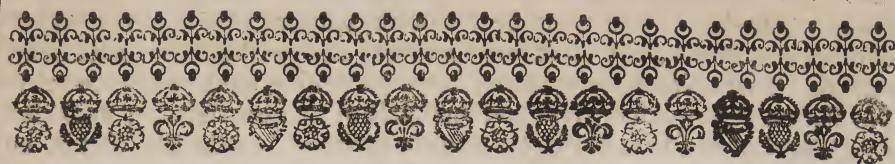
That a Snake will not endure the shade of an Ash, we can deny.

That Cats have such delight in the herb Nepeta, called therefore Cattaria, our experience cannot discover. Nor is it inconsiderable what is affirmed by Bellonius; for if his assertion be true in the first of his observations, our apprehension is oftentimes wide in ordinary simples, and in common use we mistake one for another. We know not the true Thyme; the Savory in our Gardens is not that commended of old; and that kinde of Hyssop the Ancients

used, is unknown unto us who make great use of another.

We omit to recite the many vertues, and endlesse faculties ascribed unto plants, which sometime occurre in grave and serious Authors, and we shall make a bad transaction for truth to concede a verity in half. To reckon up all, it were imployment for Archimedes, who undertook to write the number of the sands. Swarms of others there are, some whereof our future endeavours may discover; common reason I hope will save us a labour in many; whose absurdities stand naked unto every eye; errors not able to deceive the Emblem of Justice, and need no Argus to descry them. Herein there surely wants expurgatory animadversions, whereby we might strike out great numbers of hidden qualities; and having once a serious and conceded list, we might with more encouragement and safety, attempt their Reasons

THE



THE THIRD BOOK:

Of divers popular and received Tenets concerning Animals, which examined, prove either false or dubious.

CHAP. I.

Of the Elephant.



THE first shall be of the Elephant; whereof there generally passeth an opinion it hath no joints; and this absurdity is seconded with another, that being unable to lie down, it sleepeth against a tree; which the Hunters observing doe saw almost asunder; whereon the beast relying, by the fall of the tree falls also down it self, and is able to rise no more. Which conceit is not the daughter of later times, but an old and gray-headed error, even in the daies of Aristotle, as he delivereth in his book, *de incessu animalium*; and stand successively related by severall other Authors; by Diodorus Siculus, Strabo, Ambrose, Cassiodore, Solinus and many more. Now herein me thinks men much forget themselves, not well considering the absurdity of such assertions.

For first, they affirm it hath no joints, and yet concede it walks and moves about; whereby they conceive there may be a progression or advancement made in motion without inflexion of parts. Now all progression or animall locomotion being (as Aristotle teacheth) performed *tractu & pulsu*; that is, by drawing on, or impelling forward some part which was before in station, or at quiet; where there are no joints or flexures, neither can there be these actions; and this is true, not only in Quadrupedes, Volatils and Fishes, which have distinct and prominent organs of motion, legs, wings and fins; but in such also as perform their progression by the trunk, as Serpents, Wormes and Leeches; whereof though some want bones, and all extended articulations, yet have they arthriticall analogies; and by the motion of fibrous and musculous parts, are able to make progression. Which to conceive in bodies inflexible, and without all protrusion of parts, were to expect a race from Hercules his pillars; or hope to behold the effects of Orpheus his harp; when Trees found joints, and danced after his musick.

Again, While men conceive they never lie down, and enjoy not the position of rest, ordained unto all pedestrious animals, hereby they imagin (what rea-

How progression
is made in ani-
mals.

lib. 94. *. 168.

Jointlike parts.

Extensive or Tonicall motion, what.

son cannot conceive) that an animall of the vastest dimension and longest duration, should live in a continuall motion, without that alternity and vicissitude of rest whereby all others continue; and yet must thus much come to passe, if we opinion they lie not down and enjoy no decumbence at all. For station is properly no rest, but one kinde of motion, relating unto that which Physitians (from Galen) doe name extensive or tonicall; that is, an extension of the muscles and organs of motion maintaining the body at length or in its proper figure; wherein although it seem to be unmoved, it is nevertheless not without all motion; for in this position the muscles are sensibly extended, and labour to support the body; which permitted unto its proper gravity, would suddenly subside and fall unto the earth, as it happeneth in sleep, diseases and death. From which occult action and invisible motion of the muscles in station (as Galen declareth) proceed more offensive lassitudes then from ambulation. And therefore the Tyranny of some have tormented men, with long and enforced station; and though Ixion and Sisyphus which alwaies moved, doe seem to have the hardest measure; yet was not Titius favoured, that lay extended upon Caucasus; and Tantalus suffered somewhat more then thirst, that stood perpetually in hell. Thus Mercurialis in his Gymnasticks justly makes standing one kinde of exercise; and Galen when we lye down, commends unto us middle figures; that is, not to lye directly, or at length, but somewhat inflected, that the muscles may be at rest; for such as he termeth Hypobolemaioi or figures of excesse, either shrinking up or stretching out, are wearisome positions, and such as perturb the quiet of those parts. Now various parts doe variously discover these indolent and quiet positions: some in right lines, as the wrists; some at right angles, as the cubit; others at oblique angles, as the fingers and the knees: all resting satisfied in postures of moderation, and none enduring the extremity of flexure or extension.

Moreover men herein doe strangely forget the obvious relations of history, affirming they have no joints, whereas they daily reade of severall actions which are not performable without them. They forget what is delivered by Xiphilinus; and also by Suetonius in the lives of Nero and Gaiba, that Elephants have been instructed to walk on ropes, in publike shews before the people; which is not easily performed by man, and requireth not only a broad foot, but a pliable flexure of joints, and commandible disposure of all parts of progression. They passe by that memorable place in Curtius, concerning the Elephant of King Porus, *Indus qui Elephantem regebat, descendere eum ratus, more solito procumbere iussit in genua, ceteri quoque (ita enim instituti erant) demisere corpora in terram.* They remember not the expression of *Orosius de rebus gestis Emanuelis*, when he speaks of the Elephant presented to Leo the tenth, *Pontificem ter genibus flexis, & demisso corporis habitu venerabundus salutavit.* But above all, they call not to minde that memorable shew of Germanicus, wherein twelve Elephants danced unto the sound of musick, and after laid them down in the Tricliniums, or places of festivall Recumbency.

ῥένυ from ῥενία.

They forget the Etymologie of the Knee, approved by some Grammarians. They disturb the position of the young ones in the wombe: which upon extension of leggs is not easily conceivable; and contrary unto the generall contrivance of nature. Nor doe they consider the impossible exclusion thereof, upon extension and rigour of the leggs.

Lastly, They forget or consult not experience; whereof not many years past, we have had the advantage in England, by an Elephant shewn in many parts thereof; not only in the posture of standing, but kneeling and lying down.

down. Whereby although the opinion at present be well suppressed, yet from some strings of tradition, and fruitfull recurrence of error, it is not improbable, it may revive in the next generation again; this being not the first that hath been seen in England; for (besides some other since) as Polydore Virgil relateth, Lewis the French King sent one to Henry the third; and Emanuel of Portugall another to Leo the tenth into Italy; where notwithstanding the error is still alive and epidemicall, as with us.

The hint and ground of this opinion might be the grosse and somewhat Cylindricall composure of the legs, the equality and lesse perceptible disposure of the joints, especially in the four legs of this Animall; they appearing when he standeth, like pillars of flesh, without any evidence of articulation. The different flexure and order of the joints might also countenance the same; being not disposed in the Elephant, as they are in other quadrupedes, but carry a nearer conformity into those of man; that is, the bought of the fore-legs not directly backward, but laterally and somewhat inward; but the hough or suffraginous flexure behinde rather outward. Contrary unto many other quadrupedes, and such as can scratch the ear with the hinder foot, as Horses, Camels, Deer, Sheep and Dogges; for their fore legs bend like our legs, and their hinder legs like our arms, when we move them to our shoulders. But quadrupedes oviparous, as Frogs, Lizards, Crocadiles, have their joints and motive flexures more analogously framed unto ours; and some among viviparous; that is, such thereof as can bring their fore-feet and meat therein into their mouthes, as most can doe that have the clavicles or collar-bones; whereby their breasts are broader, and their shoulders more asunder, as the Ape, the Monkey, the Squirrell and some others. If therefore any shall affirm the joints of Elephants are differently framed from most of other quadrupedes, and more obscurely and grossely almost then any; he doth herein no injury unto truth. But if *à dicto secundum quid ad dictum simpliciter*, he affirmeth also they have no articulations at all; he incurs the controllment of reason, and cannot avoid the contradiction also of sense.

As for the manner of their venation, if we consult historicall experience, we shall finde it to be otherwise then as is commonly presumed, by sawing away of trees. The accounts whereof are to be seen at large in *Johannes Hugo, Edwardus Lopez, Garcias ab Horto, Cadamustus* and many more.

Other concernments there are of the Elephant, which might admit of discourse; and if we should question the teeth of Elephants, that is, whether they be properly so termed, or might not rather be called horns; it were no new enquiry of mine, but a paradox as old as Oppianus. Whether as Pliny and divers since affirm, that Elephants are terrefied, and make away upon the grunting of Swine, *Garcias ab Horto* may decide, who affirmeth upon experience they enter their stalls, and live promiscuously in the woods of Malavar. That the situation of the genitalls is averse, and their copulation like that of Camels, as Pliny hath also delivered, is not to be received; for we have beheld that part in a different position; and their coition is made by superfaliency like that of Horses, as we are informed by some who have beheld them in that act. That some Elephants have not only written whole sentences, as *Ælian* ocularly testifieth, but have also spoken, as *Oppianus* delivereth, and *Christophorus a Costa* particularly relateth; although it sound like that of *Achilles Horse* in *Homer*, we doe not conceive impossible: nor beside the affinity of reason in this Animall any such intollerable incapacity in the organs of divers quadrupedes, whereby they might not be taught to speak, or become imitators of speech like birds. Strange it is how the curiosity of men that have been active in the instruction of beasts, have never fallen upon this artifice;

Round, pillar-like.

254.†

Cyneget. lib. 2.

Some Brutes tolerably well organized for speech and approaching to reason.

201.

228.†

artifice; and among those many paradoxical and unheard of imitations, should not attempt to make one speak. The Serpent that spake unto Eve, the Dogs and Cats, that usually speak unto Witches, might afford some encouragement. And since broad and thick chops are required in birds that speak, since lips and teeth are also organs of speech; from these there is also an advantage in quadrupeds; and a proximity of reason in Elephants and Apes above them all. Since also an Echo will speak without any mouth at all, articulately returning the voice of man, by only ordering the vocal spirit in concave and hollow places; whether the muscous and motive parts about the hollow mouthes of beasts, may not dispose the passing spirit into some articulate notes, seems a querie of no great doubt.

CHAP. II.

of the Horse.

103.

Veterinarians
or Farriers.

THE second Assertion, that an Horse hath no gall, is very generall, nor only swallowed by the people, and common Farriers, but also received by good Veterinarians, and some who have laudably discoursed upon Horses. It seemeth also very ancient; for it is plainly set down by Aristotle, an Horse and all Solidungulous or whole hoofed animals have no gall; and the same is also delivered by Pliny; which notwithstanding we finde repugnant unto experience and reason. For first, it calls in question the providence or wise provision of nature; who not abounding in superfluities, is neither deficient in necessities. Wherein neverthelesse there would be a main defect, and her improvision justly accusable; if such a feeding Animall, and so subject unto diseases from bilious causes, should want a proper conveyance for choler; or have no other receptacle for that humour, then the veins, and generall masse of blood.

Medicina equa-
ria.Choler the natu-
rall glister.

It is again controulable by experience; for we have made some search and enquiry herein; encouraged by Abfyrus a Greek Author, in the time of Constantine; who in his Hippiatrics, obscurely assigneth the gall a place in the liver; but more especially by Ruino the Bononian, who in his *Anatomia del Cavallo*, hath more plainly described it, and in a manner as I found it. For in the dissections of Horses, and particular enquiry into that part, in the concave or simous part of the liver, whereabout the gall is usually seated in quadrupeds, I discover an hollow, long and membranous substance, of a yellow colour without, and lined with choler and gall within; which part is by branches diffused into the lobes and severall parcels of the liver; from whence receiving the fiery superfluity, or cholerick remainder, upon the second concoction; by a manifest and open passage, it conveyeth it into the duodenum or upper gut, thence into the lower bowels; which is the manner of its derivation in man and other animals. And therefore although there be no eminent and circular follicle, no round bagge or vesicle which long containeth this humour; yet is there a manifest receptacle and passage of choler, from the liver into the guts; which being not so shut up, or at least not so long detained, as it is in other animals; procures that frequent excretion, and occasions the Horse to dung more often then many other. For choler is the naturall glister, or one excretion whereby nature excludeth another; which descending daily into the bowels, extimulates those parts, and excites them unto expulsion. And therefore when this humour aboundeth or corrupteth,

eth, there succeeds oft times a *choleric passion*; that is, a sudden and vehement purgation upward and downward; and when the passage of gall becomes obstructed, the body growes costive, and the excrements of the belly white; as it happeneth oft times in the Jaundice.

If any therefore affirm an Horse hath no gall, that is, no receptacle, or part ordained for the separation of choler, or not that humour at all; he hath both sense and reason to oppose him, But if he saith it hath no bladder of gall, and such as is observed in many other animals, we shall oppose our sense if we gainsay him. Thus must Aristotle be made out when he denieth this part; by this distinction we may releeve Pliny of a contradiction; who in one place affirming an Horse hath no gall, delivereth yet in another, that the gall of an Horse was accounted poison; and therefore at the sacrifices of Horses in Rome, it was unlawfull for the Flamen to touch it. But with more difficulty, or hardly at all is that reconcileable which is delivered by our Countreyman, and received Veterinarian; whose words in his master-piece, and Chapter of diseases from the gall, are somewhat too strict, and scarce admit a Reconciliation. The fallacy therefore of this conceit is not unlike the former; *A dicto secundum quid ad dictum simpliciter*. Because they have not a bladder of gall, like those we usually observe in others, they have no gall at all. Which is a Paralogisme not admittible; a fallacy that dwells not in a cloud, and needs not the Sun to scatter it.

23

Priest.

CHAP. III.

Of the Dove.

THE third Assertion is somewhat like the second, That a Dove or Pigeon hath no gall; which is affirmed from very great Antiquity; for as Pierius observeth, from this consideration the Egyptians did make it the Hieroglyphick of meeknesse; it hath been averred by many holy Writers; commonly delivered by Posillors and Commentators; who from the frequent mention of the Dove in the Canticles, the precept of our Saviour, to be wise as Serpents, and innocent as Doves; and especially the appearance of the holy Ghost in the similitude of this animall; have taken occasion to set down many affections of the Dove, and what doth most commend it, is, that it hath no gall. And hereof have made use not only minor Divines, but Cyprian, Austin, Isidore, Beda, Rupertus, Jansenius and many more.

Whereto notwithstanding we know not how to assent; it being repugnant unto the Authority and positive determination of ancient Philosophy. The affirmative of Aristotle in his history of Animals is very plain, *Fel aliis ventri, aliis intestino jungitur*; Some have the gall adjoined to the guts, as the Crow, the Swallow, Sparrow and the Dove; the same is also attested by Pliny; and not without some passion by Galen, who in his book *de Atra bile*, accounts him ridiculous that denies it.

It is not agreeable to the constitution of this Animall, nor can we so reasonably conceive there wants a gall; that is, the hot and fiery humour in a body so hot of temper; which phlegm or melancholy could not effect. Now of what complexion it is, Julius Alexandrinus declareth, when he affirmeth, that some upon the use thereof, have fallen into Feavers and Quinsies; the temper of their tongue and intestinall excretions doe also confirm the same; which Topically applied become a Phlegmus or Rubifying medicine; and

Salubrium, 13°

O

are

69.

Whence the irascible, whence the concupiscible passions doe most arise.

are of such fiery parts, that as we read in Galen, they have of themselves conceived fire, and burnt a house about them. And therefore when in the famine of Samaria (wherein the fourth part of a cab of Pigeons dung was sold for five pieces of silver,) it is delivered by Josephus, that men made use hereof in stead of common salt; although the exposition seem strange, it is more probable then many other; for that it containeth very much salt, beside the effects before expressed, is discernable by taste, and the earth of Columbaries or Dovehouses, so much desired in the artifice of Salt-peter. And to speak generally, the excrement of birds which want both bladder and kidneys, hath more of salt and acrimony, then that of other animals, who beside the guts have also those conveyances; for whereas in these, the salt and lixiviated serosity with some portion of choler, is divided between the guts and bladder, it remains undivided in birds; and hath but a single descent, by the guts, with the exclusions of the belly. Now if because the Dove is of a milde and gentle nature, we cannot conceive it should be of an hot temper; our apprehensions are not distinct in the measure of constitutions, and the severall parts which evidence such conditions; for the Irascible passions doe follow the temper of the heart, but the concupiscible distractions the crasis of the liver; now many have hot livers, which have but cool and temperate hearts; and this was probably the temper of Paris; a contrary constitution to that of Ajax; and both but short of Medea, who seemed to exceed in either.

Lastly, It is repugnant to experience; for Anatomicall enquiry discovereth in them a gall; and that according to the determination of Aristotle, not annexed unto the Liver but adhering unto the guts; nor is the humour contained in smaller veines, or obscurer capillations, but in a vesicle or little bladder, though some affirm it hath no bag at all. And therefore the Hieroglyphick of the Egyptians, though allowable in the sense, is weak in the foundation; who expressing meeknesse and lenity by the portraict of a Dove with the taile erected, affirmed it had no gall in the inward parts, but onely in the rump, and as it were out of the body. And therefore if they conceived their gods were pleased with the sacrifice of this Animall, as being without gall, the ancient Heathen were surely mistaken in the reason, and in the very oblation. Whereas in the holocaust or burnt offerings of Moses the gall was cast away; for as Ben Maimon instructeth, the inwards whereto the gall adhereth were taken out with the crop, according unto the Law, Levit. i. which the Priest did not burn, but cast unto the East; that is, behinde his back, and readiest place to be carried out of the Sanctuary. And if they also conceived that for this reason, they were the birds of Venus, and wanting the furious and discording part, were more acceptable unto the Deity of Love; they surely added unto the conceit; which was at first venereall; and in this animall may be sufficiently made out from that conception.

Doves, the birds of Venus, why.

The various situation of the Gall in Animals.

The ground of this conceit is partly like the former; the obscure situation of the gall, and out of the Liver, wherein it is commonly enquired; but this is a very unjust illation, not well considering with what variety this part is seated in birds; in some both at the stomach and the liver, as in the Capri-ceps; in some at the liver only, as in Cocks, Turkeys and Phasants; in others at the guts and Liver, as in Hawkes and Kites, in some at the guts alone, as Crows, Doves, and many more. And these perhaps may take up all the waies of situation, not only in birds, but also other animals; for what is said of the Anchovy, that answerable unto its name it carrieth the gall in the head, is further to be enquired. And though the discoloured particles in

in the skin of an Heron, be commonly termed Galls; yet is not this animall deficient in that part. And thus when it is conceived that the eyes of Tobias were cured by the gall of the fish *Callyonimus* or *Scorpius marinus*, commended to that effect by Dioscorides; although that part were not in the Liver, there were no reason to doubt that probability. And whatsoever animall it was, it may be received without exception when 'tis delivered, the married couple as a testimony of future concord, did cast the gall of the sacrifice behinde the Altar.

A strict and literall acception of a loose and tropicall expression was a second ground hereof. For while some affirmed it had no gall, intending onely thereby no evidence of anger or fury; others have construed it anatomically, and denied that part at all. By which illation we may inferre, and that from sacred Text; a Pigeon hath no heart; according to that expression, Hosea 7. *Factus est Ephraim sicut Columba seducta non habens cor*; and so from the letter of Scripture we may conclude it is no milde, but a fiery and furious animall, according to that of Jeremy, chap. 25: *Facta est terra in desolationem à facie ira Columba*: and again, chap. 46. *Revertamur ad terram nativitatis nostræ à facie gladii Columba*. Where notwithstanding the Dove is not literally intended; but thereby are implied the Babylonians, whose Queen Semiramis was called by that name; and whose successors did bear the Dove in their standard. So is it proverbially said, *Formica sua bilis inest, habet & musca splenem*; whereas we know Philosophy denieth these parts; nor hath Anatomy discovered them in insects.

If therefore any affirm a Pigeon hath no gall; implying no more thereby then the lenity of this animall, we shall not controvert his affirmation. Thus may we make out the assertions of ancient Writers, and safely receive the expressions of Divines and worthy Fathers. But if by a transition from Rhetorick to Logick, he shall contend, it hath no such part or humour; he committeth an open fallacy, and such as was probably first committed concerning Spanish Mares; whose swiftnesse tropically expressed from their generation by the winde; might after be grossly taken, and a reall truth conceived in that conception.

93

224. 224. 132.

Orig. Gong. lib. 3. circa modum lib.

CHAP. IV.

of the Bever.

THat a Bever to escape the Hunter, bites off his testicles or stones, is a tenent very ancient; and hath had thereby advantage of propagation. For the same we finde in the Hieroglyphicks of the Egyptians; in the Apologue of Æsop, an Author of great antiquity, who lived in the beginning of the Persian Monarchy, and in the time of Cyrus; the same is touched by Aristotle in his Ethicks, but seriously delivered by Ælian, Pliny and Solinus; with the same we meet with in Juvenall, who by an handsome and metricall expression more welcomely engrafte it in our junior memories

— *imitatus Castora, qui se
Eunuchum ipse facit, cupiens evadere damno
Testiculorum, adeo medicatum intelligit inguen.*

it hath been propagated by Emblems; and some have been so bad Grammarians, as to be deceived by the name, deriving *Castor* à *castrando*; whereas, the

Æsops Apologues
of what antiquity

267.

proper Latine word is *Fiber*; and *Castor*, but borrowed from the Greek, so called *quasi vésus*, that is, *Animal ventricosum*, from his swaggy and prominent belly.

Herein therefore to speak compendiously, we first presume to affirm, that from a strict enquiry, we cannot maintain the evulsion or biting off any parts; and this is declarable from the best and most professed Writers; for though some have made use hereof in a Morall or Tropicall way, yet have the professed discoursers by silence deserted, or by experience rejected this assertion. Thus was it in ancient times discovered, and experimentally refuted by one Sestius a Physitian, as it stands related by Pliny; by Dioscorides, who plainly affirms that this tradition is false; by the discoveries of modern Authors, who have expressly discoursed hereon, as Aldrovandus, Mathiolus, Gesnerus, Bellonius; by Olaus Magnus, Peter Martyr and divers others; who have described the manner of their venations in America; they generally omitting this way of their escape, and have delivered severall other, by which they are daily taken.

The originall of the conceit was probably Hieroglyphicall; which after became Mythologicall unto the Greeks, and so set down by Æsop; and by proceſſe of tradition, stole into a totall verity, which was but partially true, that is in its covert ſenſe and morality. Now why they placed this invention upon the Bever (beſide the Medicall and Merchantable commodity of *caſtoreum* or parts conceived to be bitten away) might be the ſagacity and wiſdome of that animall; which indeed from the works it performs, and eſpecially its artifice in building, is very ſtrange, and ſurely not to be matched by any other; omitted by Plutarch *de ſolertia animalium*, but might have much advantaged the diſt of that diſcourſe.

If therefore any affirm a wiſe man ſhould demean himſelf like the Bever, who to eſcape with his life, contemneth the loſſe of his genitals; that is, in caſe of extremity, not ſtrictly to endeavour the preſervation of all, but to ſit down in the enjoiment of the greater good, though with the detriment and hazzard of the leſſer; we may hereby apprehend a reall and uſefull truth. In this latitude of belief, we are content to receive the fable of Hippomanes who redeemed his life with the loſſe of a golden ball; and whether true or falſe, we reject not the tragedy of Abſyrtus, and the diſperſion of his members by Medea to perplex the purſuit of her father. But if he ſhall poſitively affirm this act, and cannot beleve the morall, unleſſe he alſo credit the fable; he is ſurely greedy of deluſion, and will hardly avoid deception in theories of this nature. The error therefore and Alogy in this opinion, is worſe then in the laſt; that is not to receive figures for realities, but expect a verity in Apologues; and beleve, as ſerious affirmations, confeſſed and ſtudied fables.

Again, If this were true, and that the Bever in chafe makes ſome divulſion of parts, as that which we call *Caſtoreum*; yet are not theſe parts avell'd to be termed Teſticles or ſtones; for theſe cods or follicles are found in both ſexes, though ſomewhat more protuberant in the male. There is hereto no derivation of the feminall parts, nor any paſſage from hence, unto the veſſels of ejaculation: ſome perforations only in the part it ſelf, through which the humor included doth exudate; as may be obſerved in ſuch as are freſh, and not much dried with age; and laſtly, the Teſticles properly ſo called, are of a leſſer magnitude and ſeated inwardly upon the loines; and therefore it were not only a fruitleſſe attempt, but impoſſible act, to ennuhate or caſtrate themſelves; and might be an hazardous practice of Art, if at all attempted by others.

Now

Now all this is confirmed from the experimentall testimony of five very memorable Authors; Bellonius, Gesnerus, Amatus, Rondeletius and Mathiolus; who receiving the hint hereof from Rondeletius in the Anatomy of two Bevers, did finde all true that had been delivered by him, whose words are these in his learned book *de Piscibus: Fibri in inguinibus geminos tumores habent, utrinque unicum, ovi Anserini magnitudine, inter hos est mentula in maribus, in fœminis pudendum, hi tumores testes non sunt, sed folliculi membranâ contecti, in quorum medio singuli sunt meatus è quibus exudat liquor pinguis & cerosus, quem ipse Castor saepe admoto ore lambit & exugit, postea veluti oleo, corporis partes oblini; Hos tumores testes non esse hinc maxime colligitur, quod ab illis nulla est ad mentulam via neque ductus quo humor in mentula meatum derivetur, & foras emittatur; præterea quod testes intus reperiuntur, eosdem tumores Moscho animali inesse puto, è quibus odoratum illud pus emanat*; then which words there can be none plainer, nor more evidently discover the impropriety of this appellation. That which is included in the cod or visible bagge about the groin, being not the Testicle, or any spermaticall part, but rather a collection of some superfluous matter descending from the body, especially the parts of nutrition as unto their proper emunctories; and as it doth in Musk and Civet cats, though in a different and offensive odour; proceeding partly from its food, that being especially fish; whereof this humor may be a garous excretion and olidous separation.

Most therefore of the Modernes before Rondeletius, and all the Ancients excepting Sestius, have misunderstood this part, conceiving *Castoreum* the Testicles of the Bever, as Dioscorides, Galen, Aegineta, Aetius, and others have pleased to name it. The Egyptians also failed in the ground of their Hieroglyphick, when they expressed the punishment of adultery by the Bever depriving himself of his testicles; which was amongst them the penalty of such incontinency. Nor is Aetius perhaps, too strictly to be observed, when he prescribeth the stones of the Otter, or River-dog, as succedaneous unto *Castoreum*. But most inexcusable of all is Pliny; who having before him in one place the experiment of Sestius against it, sets down in another, that the Bevers of Pontus bite off their testicles, and in the same place affirmeth the like of the Hyena; which was indeed well joined with the Bever, as having also a bagge in those parts; if thereby we understand the Hyena odorata, or Civet cat, as is delivered and graphically described by Castellus.

Now the ground of this mistake might be the resemblance and situation of these tumors about those parts, wherein we observe the testicles in other animals. Which notwithstanding is no well founded illation; for the testicles are defined by their office, and not determined by place or situation; they having one office in all, but different seats in many. For beside that no serpent or fishes oviparous, have any stones at all; that neither biped nor quadruped oviparous have any exteriorly, or prominent in the groin; some also that are viviparous contain these parts within, as, beside this animal, the Elephant, and the Hedge-hog.

If any therefore shall terme these, testicles, intending metaphorically, and in no strict acception; his language is tolerable and offends our eares no more then the Tropicall names of plants, when we reade in Herbals, of Dogs, Fox, and Goat-stones. But if he insist thereon, and maintain a propriety in this language; our discourse hath overthrown his assertion, nor will Logick permit his illation; That is, from things alike, to conclude a thing the same; and from an accidentall convenience, that is a similitude in

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Castellus de
Hyenâ odori-
ferâ.

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place or figure, to infer a specificall congruity or substantiall concurrence in nature.

CHAP. V.

Of the Badger.

THat a Brock or Badger hath the legs of one side shorter then of the other, though an opinion perhaps not very ancient, is yet very generall; received not only by theorists and unexperienced beleivers, but assented unto by most who have the opportunity to behold and hunt them daily. Which notwithstanding upon enquiry I finde repugnant unto the three determinators of truth, Authority, Sense and Reason. For first, Albertus *magnus* speaks dubiously, confessing he could not confirm the verity hereof; but Aldrovand affirmeth plainly, there can be no such inequality observed. And for my own part, upon indifferent enquiry, I cannot discover this difference; although the regardible side be defined, and the brevity by most imputed unto the left.

Again, It seems no easie affront unto reason, and generally repugnant unto the course of nature; for if we survey the totall set of animals, we may in their legs, or organs of progression, observe an equality of length, and parity of numeration; that is, not any to have an odde leg, or the supporters and movers of one side not exactly answered by the other. Although the hinder may be unequall unto the fore and middle legs, as in Frogs, Locusts and Grasshoppers; or both unto the middle, as in some beetles, and spiders, as is determined by Aristotle *de incessu animalium*. Perfect and viviparous quadrupeds, so standing in their position of proneness, that the opposite joints of neighbour legs consist in the same plane; and a line descending from their navell intersects at right angles the axis of the earth. It happeneth often I confesse that a Lobster hath the chely or great claw of one side longer then the other; but this is not properly their leg, but a part of apprehension, and whereby they hold or seize upon their prey; for the legs and proper parts of progression are inverted backward, and stand in a position opposite unto these.

Lastly, The monstrosity is ill contrived, and with some disadvantage; the shortnesse being affixed unto the legs of one side, which might have been more tolerably placed upon the thwart or Diagoniall movers; for the progression of quadrupeds being performed *per Diametrum*, that is the crosse legs moving or resting together, so that two are alwaies in motion, and two in station at the same time; the brevity had been more tolerable in the crosse legs. For then the motion and station had been performed by equall legs; whereas herein they are both performed by unequall organs, and the imperfection becomes discoverable at every hand.

lib. 104. *
18. q.

lib. 85. q.

Diagonion, a
line drawn
from the crosse
angles.

CHAP. VI.

Of the Beare.

THat a Bear brings forth her young informous and unshapen, which she fashioneth after by licking them over, is an opinion not only vulgar, and common with us at present; but hath been of old delivered by ancient Writers. Upon this foundation it was a Hieroglyphick with the Egyptians; Aristotle seems to countenance it; Solinus, Pliny and Ælian directly affirm it, and Ovid smoothly delivereth it

*Nec catulus partu quem reddidit ursa recenti
Sed male viva caro est, lambendo mater in artus
Ducit, & in formam qualem cupit ipsa reducit.*

Which opinion notwithstanding is not only repugnant unto the sense of every one that shall enquire into it, but the exact and deliberate experiment of three authentick Philosophers. The first of Mathiolus in his Comment on Dioscorides, whose words are to this effect. In the valley of Anania about Trent, in a Bear which the Hunters everted or opened, I beheld the young ones with all their parts distinct; and not without shape, as many conceive; giving more credit unto Aristotle and Pliny, then experience and their proper senses. Of the same assurance was Julius Scaliger in his Exercitationes, *Ursam fetus informes potius ejicere, quam parere, si vera dicunt, quos postea linetu effingat; Quid hujusce fabula authoribus fidei habendum ex hac historia cognosces; In nostris Alpibus venatores fatam ursam cepere, dissecta ea fetus plane formatus intus inventus est:* And lastly, Aldrovandus who from the testimony of his own eyes affirmeth, that in the cabinet of the Senate of Bononia, there was preserved in a glasse a Cub dissected out of a Bear perfectly formed, and compleat in every part.

It is moreover injurious unto reason, and much impugneth the course and providence of nature, to conceive a birth should be ordained before there is a formation. For the conformation of parts is necessarily required not only unto the prerequisites and previous conditions of birth, as motion and animation; but also unto the parturition or very birth it self: Wherein not only the Dam, but the younglings play their parts, and the cause and act of exclusion proceedeth from them both. For the exclusion of animals is not merely passive like that of egges, nor the totall action of delivery to be imputed unto the mother; but the first attempt beginneth from the Infant; which at the accomplished period attempteth to change his mansion; and struggling to come forth, dilacerates and breaks those parts which restrained him before.

Beside (what few take notice of) men hereby doe in a high measure vilifie the works of God, imputing that unto the tongue of a beast, which is the strangest artifice in all the acts of nature; that is the formation of the Infant in the womb; not only in mankinde, but all viviparous animals. Wherein the plastick or formative faculty, from matter appearing homogeneous, and of a similary substance, erecteth bones, membranes, veins and arteries; and out of these contriveth every part in number, place and figure, according to the law of its species. Which is so far from being fashioned by any outward agent, that once omitted or perverted by a slip of the inward Phidias, it is not reducible by any other whatsoever. And therefore, *mirè me plasmasverunt manus tue*, though it originally respected the generation of man,

Formation in the
Matrix the admirable
work of nature.

man, yet is it appliable unto that of other animals; who entring the womb in indistinct and simple materials, return with distinction of parts, and the perfect breath of life. He that shall consider these alterations without, must needs conceive there have been strange operations within; which to behold, it were a spectacle almost worth ones being; a sight beyond all; except that man had been created first, and might have seen the shew of five daies after.

Now as the opinion is repugnant both unto sense and reason, so hath it probably been occasioned from some slight ground in either. Thus in regard the Cub comes forth involved in the Chorion, a thick and tough membrane obscuring the formation, and which the Dam doth after bite and tear asunder; the beholder at first sight conceives it a rude and informous lump of flesh, and imputes the ensuing shape unto the mouching of the Dam; which addeth nothing thereunto, but only drawes the curtain, and takes away that vaile which concealed the piece before. And thus have some endeavoured to enforce the same from reason; that is, the small and slender time of the Beares gestation, or going with her young; which lasting but few daies (a moneth some say) the exclusion becomes precipitous, and the young ones consequently informous; according to that of Solinus, *Trigesimus dies uterum liberat urse; unde evenit ut precipitata fecunditas informes creet partus*. But this will overthrow the generall method of nature, in the works of generation. For therein the conformation is not only antecedent, but proportionall unto the exclusion; and if the period of the birth be short, the term of conformation will be as sudden also. There may I confesse from this narrow time of gestation ensue a minority or smalnesse in the exclusion; but this however inferreth no infirmity, and it still receiveth the name of a naturall and legitimate birth; whereas if we affirm a totall infirmity, it cannot admit so forward a term as an Abortment; for that supposeth conformation; and so we must call this constant and intended act of nature, a slip or effluxion, that is an exclusion before conformation; before the birth can bear the name of the parent, or be so much as properly called an Embryon.

CHAP. VII.

Of the Basilisk.

Many opinions are passant concerning the Basilisk or little king of Serpents, commonly called the Cockatrice; some affirming, others denying, most doubting the relations made hereof. What therefore in these incertainties we may more surely determine; that such an animall there is, if we evade not the testimony of Scripture, and humane Writers, we cannot safely deny. So is it said, *Psal. 91. Super aspidem & Basiliscum ambulabis*, wherein the vulgar Translation retaineth the word of the Septuagint, using in other places the Latine expression *Regulus*, as *Proverb. 23. Mordebit ut coluber, & sicut Regulus venena diffundet*, and *Jeremy 8. Ecce ego mittam vobis serpentes Regulos, &c.* That is, as ours translate it, Behold I will send Serpents, Cockatrices among you which will not be charmed, and they shall bite you. And as for humane Authors, or such as have discoursed of animals, or poisons, it is to be found almost in all; in *Dioscorides*, *Galen*, *Pliny*, *Solinus*, *Ælian*, *Ætius*, *Avicen*, *Ardoynus*, *Grevinus*, and many

many more. In Aristotle I confesse we finde no mention thereof, but Scaliger in his Comment and enumeration of Serpents, hath made supply; and in his Exercitations delivereth that a Basilisk was found in Rome, in the daies of Leo the fourth; the like is reported by Sigonius; and some are so farre from denying one, that they have made severall kindes thereof; for such is the Catoblepas of Pliny, conceived by some; and the Dryinus of Aetius by others.

But although we deny not the existence of the Basilisk, yet whether we doe not commonly mistake in the conception hereof, and call that a Basilisk which is none at all, is surely to be questioned. For certainly that which from the conceit of its generation we vulgarly call a Cockatrice, and wherein (but under a different name) we intend a formall Identity and adequate conception with the Basilisk; is not the Basilisk of the Ancients, whereof such wonders are delivered. For this of ours is generally described with legs, wings, a serpentine and winding taile, and a crist or comb somewhat like a Cock; but the Basilisk of elder times was a proper kinde of Serpent, not above three palmes long, as some account; and differenced from other Serpents by advancing his head, and some white marks or coronary spots upon the crown; as all authentick Writers have delivered.

Nor is this Cockatrice only unlike the Basilisk, but of no reall shape in nature; and rather an Hieroglyphicall fancy, to expresse different intentions, set forth in different fashions; sometimes with the head of a man, sometimes with the head of an Hawk, as Pierius hath delivered; and as with addition of legs the Heralds and Painters still describe it. Nor was it onely of old a symbollicall and allowable invention, but is now become a manuell contrivance of Art, and artificiall imposture; whereof besides others, Scaliger hath taken notice: *Basilisci formam mentiti sunt vulgo Gallinaceo similem, & pedibus binis; neque enim absimiles sunt ceteris serpentibus, nisi maculâ quasi in vertice candidâ, unde illi nomen Regium;* that is, men commonly counterfeit the form of a Basilisk, with another like a Cock, and with two feet; whereas they differ not from other Serpents, but in a white speck upon their crown. Now although in some manner it might be counterfeited in Indian Cocks, and flying Serpents; yet is it commonly contrived out of the skins of Thornbacks, Scaites or Maids, as Aldrovand hath observed; and also graphically described in his excellent book of Fishes.

By way of figure.

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Nor is only the existency of this animall considerable, but many things delivered thereof, particularly its poison, and its generation. Concerning the first, according to the doctrine of the Ancients, men still affirm, that it killeth at a distance, that it poisoneth by the eye, and by priority of vision. Now that deleterious it may be at some distance and destructive without corporall contaction, what uncertainty soever there be in the effect, there is no high improbability in the relation. For if plagues or pestilentiall Atomes have been conveyed in the air from different Regions; if men at a distance have infected each other; if the shaddowes of some trees be noxious; if Torpedoes deliver their opium at a distance, and stupifie beyond themselves; we cannot reasonably deny, that (beside our grosse and restrained poisons requiring contiguity unto their actions) there may proceed from subtiller seeds, more agile emanations; which contemn those Laws, and invade at distance unexpected.

That this venenation shooteth from the eye, and that this way a Basilisk may empoison, although thus much be not agreed upon by Authors, some imputing it unto the breath, others unto the bite, it is not a thing impossible;

P

for

Effluxion of corporeall species.

Ocular fascination made out.

How the Basilisk kills at distance.

201.

for eies receive offensive impressions, from their objects, and may have influences destructive to each other. For the visible species of things strike not our senses immaterially; but streaming in corporall raies, doe carry with them the qualities of the object from whence they flow, and the medium through which they passe. Thus through a green or red glasse all things we behold appear of the same colours; thus sore eies affect those which are found; and themselves also by reflection; as will happen to an inflamed eye that beholds it self long in a glasse; thus is fascination made out; and thus also it is not impossible, what is affirmed of this animall; the visible raies of their eies carrying forth the subtlest portion of their poison; which received by the eie of man, or beast, infecteth first the brain, and is from thence communicated unto the heart.

But lastly, That this destruction should be the effect of the first beholder, or depend upon priority of aspection, is a point not easily to be granted, and very hardly to be made out upon the principles of Aristotle, Alhazen, Vitello, and others; who hold that sight is made by Reception, and not by Extramission; by receiving the raies of the object into the eye, and not by sending any out. For hereby although he behold a man first, the Basilisk should rather be destroyed, in regard he first receiveth the raies of his Antipathy, and venomous emissions which objectively move his sense; but how powerfull soever his own poison be, it invadeth not the sense of man, in regard he beholdeth him not. And therefore this conceit was probably begot by such as held the opinion of sight by extramission; as did Pythagoras, Plato, Empedocles, Hipparchus, Galen, Macrobius, Proclus, Simplicius, with most of the Ancients, and is the postulate of Euclide in his Opticks, but now sufficiently convicted from observations of the dark chamber.

The generation of the Cocks-egge.

109.

Ovum Centenarium, or the last egge, which is a very little one.

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As for the generation of the Basilisk, that it proceedeth from a Cocks egge hatched under a Toad or Serpent, it is a conceit as monstrous as the brood it self. For if we should grant that Cocks growing old, and unable for emission, amasse within themselves some seminall matter, which may after conglobate into the forme of an egge, yet will this substance be unfruitfull; as wanting one principle of generation, and a commixture of the seed of both sexes, which is required unto production; as may be observed in the egges of Hens not trodden; and as we have made triall in some which are termed Cocks egges. It is not indeed impossible that from the sperm of a Cock, Hen, or other animall being once in putrescence, either from incubation, or otherwise, some generation may ensue; not univocall and of the same species, but some imperfect or monstrous production; even as in the body of man from putrid humours, and peculiar waies of corruption, there have succeeded strange and unseconded shapes of wormes, whereof we have beheld some our selves, and read of others in medicall observations. And so may strange and venomous Serpents be severall waies engendered; but that this generation should be regular, and alway produce a Basilisk, is beyond our affirmation, and we have good reason to doubt.

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Again, It is unreasonable to ascribe the equivocacy of this form unto the hatching of a Toade, or imagine that diversifies the production. For Incubation alters not the species; nor if we observe it so much as concurreth either to the sex or colour; as appears in the eggs of Ducks or Partridges hatched under a Hen; there being required unto their exclusion, only a gentle and continued heate; and that not particular or confined unto the species or parent. So have I known the seed of Silk-wormes hatched on the bodies of women: Pliny reports that Livia the wife of Augustus hatched an egge in her bosome. Nor is only an animall heate required hereto, but an elementall and artificiall warmth

See apposite to this purpose. 116

warmth will suffice; for as Diodorus delivereth, the Egyptians were wont to hatch their eggs in ovens, and many eyewitnesses confirm that practice unto this day. And therefore this generation of the Basilisk, seems like that of Castor and Helena; he that can credit the one, may easily beleieve the other; that is, that these two were hatched out of the egge, which Jupiter in the form of a Swan, begat on his Mistres Leda.

The occasion of this conceit might be an Egyptian tradition concerning the bird Ibis; which after became transferred unto Cocks. For an old opinion it was of that Nation, that the Ibis feeding upon Serpents, that venemous food so inquinated their ovall conceptions, or egges within their bodies, that they sometimes came forth in Serpentine shapés; and therefore they alwaies brake their egges, nor would they endure the bird to sit upon them. But how causelesse their fear was herein, the daily Incubation of Ducks, Peahens, and many other testifie; and the Stork might have informed them; which bird they honoured and cherished, to destroy their Serpents.

That which much promoted it, was a misapprehension in holy Scripture upon the Latine Translation in Esay 51. *Ova aspidum ruperunt, & telas Aranearum texuerunt, qui comedent de ovis eorum morietur, & quod confectum est, erumpet in Regulum.* From whence notwithstanding, beside the generation of Serpents from egges, there can be nothing concluded; but what kinde of Serpents are meant, not easie to be determined; for translations are very different: Tremellius rendring the Aspe Hamorrhous, and the Regulus or Basilisk a Viper, and our translation for the Aspe sets down a Cockatrice in the text, and an Adder in the margine.

Another place of Esay doth also seem to countenance it, Chap. 14. *Ne Læteris Philistæa quoniam diminuta est virga percussoris tui, de radice enim colubri egredietur Regulus, & semen ejus absorbens volucrem;* which ours somewhat favourably rendreth; Out of the Serpents Root shall come forth a Cockatrice, and his fruit shall be a fiery flying Serpent. But Tremellius, *è radice Serpentis prodit Hamorrhous, & fructus illius Præster volans;* wherein the words are different, but the sense is still the same; for therein are figuratively intended Uziah and Ezechias; for though the Philistines had escaped the minor Serpent Uziah, yet from his stock, a fiercer Snake should arise, that would more terribly sting them, and that was Ezechias.

CHAP. VIII.

of the Wolfe.

SUCH a Story as the Basilisk is that of the Wolfe concerning priority of vision, that a man becomes hoarse or dumbe, if a Wolfe have the advantage first to eye him. And this is in plain language affirmed by Pliny: *In Italia ut creditur, Luporum visus est noxijs, vocemque homini, quem prius contemplatur adimere;* so is it made out what is delivered by Theocritus, and after him by Virgil

Vox quoq; Mærim

jam fugit ipsa, Lupi Mærim videre priores.

Thus is the Proverb to be understood, when during the discourse if the party or subject interveneth, and there ensueth a sudden silence, it is usually said, *Lupus est in fabulâ.* Which conceit being already convicted, not only by Scalliger, Riolanus and others, but daily confutable almost every where out of England; we shall not further refute.

The ground or occasionall originall hereof, was probably the amazement and sudden silence, the unexpected appearance of Wolves doe often put upon travellers; not by a supposed vapour, or venomous emanation, but a vehement fear which naturally produceth obmutescence; and sometimes irrecoverable silence. Thus birds are silent in presence of an Hawk, and Pliny saith that dogges are mute in the shadow of an Hyana; but thus could not the mouthes of worthy Martyrs be silenced, who being exposed not only unto the eyes, but the mercilesse teeth of Wolves, gave lowd expressions of their faith; and their holy clamours were heard as high as heaven.

That which much promoted it beside the common Proverb, was an expression in Theocritus, a very ancient Poet, *ἔδωκεν λυκὸν εἶδαι*, *Edere non poteris vocem*, *Lycus est tibi visus*; which Lycus was Rivall unto another; and suddenly appearing stopped the mouth of his Corrivall: now Lycus signifying also a Wolfe, occasioned this apprehension; men taking that appellatively, which was to be understood properly, and translating the genuine acception. Which is a fallacy of Æquivocation, and in some opinions begat the like conceit concerning Romulus and Remus, that they were fostered by a Wolfe, the name of the Nurse being *Lupa*; and founded the fable of Europa, and her carriage over Sea by a Bull, because the Ship or Pilots name was *Taurus*. And thus have some been startled at the Proverb, *Bos in lingua*; confusedly apprehending how a man should be said to have an Oxe in his tongue, that would not speak his minde; which was no more then that a piece of money had silenced him: for by the Oxe was only implied a piece of coin stamped with that figure, first currant with the Athenians, and after among the Romanes.

CHAP. IX.

Of Deere.

THE common opinion concerning the long life of Animals, is very ancient, especially of Crowes, Choughs and Deere; in moderate accounts exceeding the age of man; in some the daies of Nestor, and in others surmounting the years of Artepheus or Methuselah; from whence Antiquity hath raised proverbiall expressions, and the reall conception of their duration, hath been the hyperbolicall expression of many others. From all the rest we shall single out the Deer; upon concession a long-liv'd Animall, and in longevity by many conceived to attain unto hundreds; wherein permitting every man his own belief, we shall our selves crave liberty to doubt; and our reasons are these ensuing.

The first is that of Aristotle, drawn from the increment and gestation of this Animall, that is, its sudden arrivance unto growth and maturity, and the small time of its remainder in the wombe. His words in the translation of Scaliger are these; *De ejus vite longitudine fabulantur; neque enim aut gestatio aut incrementum hinnulorum ejusmodi sunt, ut præstent argumentum longævæ animalis*; that is, fables are raised concerning the vivacity of Deere; for neither are their gestation or increment, such as may afford an argument of long life. And these saith Scaliger, are good mediums conjunctively taken, that is, not one without the other. For of animals viviparous such as live long, goe long with young, and attain but slowly to their maturity and stature. So the Horse that liveth about thirty, arriveth unto his stature about

fix

six years, and remaineth above nine moneths in the wombe; so the Camell that liveth unto fifty, goeth with young no lesse then ten moneths, and ceaseth not to grow before seven; and so the Elephant that liveth an hundred, beareth its young above a year, and arriveth unto perfection at twenty. On the contrary, the Sheep and Goat, which live but eight or ten years, goe but five moneths, and attain to their perfection at two years: and the like is observable in Cats, Hares and Conies. And so the Deere that endureth the wombe but eight moneths, and is compleat at six years, from the course of nature, we cannot expect to live an hundred; nor in any proportionall allowance much more then thirty; as having already passed two generall motions observable in all animations, that is, its beginning and encrease; and having but two more to runne thorow, that is, its state and declination; which are proportionally set out by nature in every kinde; and naturally proceeding admit of inference from each other.

The other ground that brings its long life into question, is the immoderate falacity, and almost unparalleled excesse of venery, which every September may be observed in this Animall; and is supposed to shorten the lives of Cocks, Partridges and Sparrows. Certainly a confessed and undeniable enemy unto longevity; and that not only as a signe in the complexionall desire and impetuosity; but also as a cause in the frequent act, or iterated performance thereof. For though we consent not with that Philosopher, who thinks a spermatieall emission unto the weight of one dragme, is æquivalent unto the effusion of sixty ounces of bloud; yet considering the exolution and langour ensuing that act in some, the extenuation and marcour in others, and the visible acceleration it maketh of age in most; we cannot but think it much abridgeth our daies. Although we also concede that this exclusion is naturall, that nature it self will finde a way hereto without either act or object: And although it be placed among the six non-naturals, that is, such as neither naturally constitutive, nor meerly destructive, doe preserve or destroy according unto circumstance; yet doe we sensibly observe an impotency or totall privation thereof, prolongeth life; and they live longest in every kinde that exercise it not at all. And this is true not only in Eunuches by nature, but Spadoes by Art; for castrated animals in every species are longer lived then they which retain their virilities: For the generation of bodies is not effected as some conceive, of souls, that is, by Irradiation, or answerably unto the propagation of light, without its proper diminution; but therein a transmission is made materially from some parts, and Ideally from every one; and the propagation of one, is in a strict acception, some minoration of another. And therefore also that axiome in Philosophy, that the generation of one thing, is the corruption of another; although it be substantially true concerning the form and matter, is also dispositively verified in the efficient or producer.

As for more sensible arguments, and such as relate unto experiment, from these we have also reason to doubt its age, and presumed vivacity; for where long life is naturall, the marks of age are late, and when they appear, the journey unto death cannot be long. Now the age of Deer (as Aristotle long agoe observed) is best conjectured, by view of the horns and teeth; from the horns there is a particular and annuall account unto six years; they arising first plain, and so successively branching; after which the judgement of their years by particular marks becomes uncertain; but when they grow old, they grow lesse branched, and first doe lose their *ἀντιπύλας*, or *propugnacula*; that is, their brow Antlers, or lowest furcations next the head, which Aristotle saith the young ones use in fight, and the old as needlesse have them not

Upon this reason Lewis 12
of France lived but 82 years
after his marriage to a lady
a young lady Mary, daughter of
H. 7. of England. See Holings-
head's Chr. pag. 835. col. 2.
a looseness. b Faintness.
c Cleanse. d Pining away.

82.

So Aristotle in lib. 8 long bite
Eunuches and
gelded creatures
generally longer
lived.

293.

at all. The same may be also collected from the losse of their Teeth, whereof in old age they have few or none before in either jaw. Now these are infallible marks of age, and when they appear, we must confesse a declination; which notwithstanding (as men inform us in England, where observations may well be made,) will happen between twenty and thirty. As for the bone or rather induration of the roots of the arteriall vein, and great artery, which is thought to be found only in the heart of an old Deere, and therefore becomes more precious in its rarity; it is often found in Deere, much under thirty; and we have known some affirm they have found it in one of half that age. And therefore in that account of Pliny, of a Deere with a collar about his neck, put on by Alexander the Great, and taken alive a hundred years after, with other relations of this nature, we much suspect imposture or mistake; and if we grant their verity, they are but single relations, and very rare contingencies in individuals, not affording a regular diduction upon the species. For though Ulysses his Dogge lived unto twenty, and the Athenian Mule unto fourscore; yet doe we not measure their daies by those years, or usually say, they live thus long; nor can the three hundred years of John of times, or Nestor, overthrow the assertion of Moses, or afford a reasonable encouragement beyond his septuagenary determination.

116.

Psalm. 90.

Histor. animal.
lib. 8.

The ground and authority of this conceit was first Hieroglyphicall, the Egyptians expressing longavity by this animal; but upon what uncertainties, and also convincible falsities they often erected such emblems, we have elsewhere delivered. And if that were true which Aristotle delivers of his time, and Pliny was not afraid to take up long after, the Egyptians could make but weak observations herein; for though it be said that Æneas feasted his followers with Venison, yet Aristotle affirms that neither Deere nor Boar were to be found in Africa. And how far they miscounted the lives and duration of Animals, is evident from their conceit of the Crow, which they presume to live five hundred years; and from the lives of Hawkes which (as Ælian delivereth) the Egyptians doe reckon no lesse then at seven hundred.

The second which led the conceit unto the Grecians, and probably descended from the Egyptians, was Poeticall; and that was a passage of Hesiod, thus rendred by Aulonius.

*Ter binos deciesq; novem super exit in annos,
Iusta senescentum quos implet vita virorum.
Hos novies superat vivendo garrula cornix,
Et quater egreditur cornicis sacula cervus,
Alipedem cervum ter vincit corvus. —*

To ninety six the life of man ascendeth,
Nine times as long that of the Chough extendeth,
Four times beyond, the life of Deere doth goe,
And thrice is that surpassed by the Crow.

So that according to this account, allowing ninety six for the age of man, the life of a Deere amounts unto three thousand, four hundred, fifty six. A conceit so hard to be made out, that many have deserted the common and litterall construction. So Theon in Aratus would have the number of nine not taken strictly, but for many years. In other opinions the compute so farre exceedeth truth, that they have thought it more probable to take the word Genea, that is, a generation consisting of many years, but for one year, or a single revolution of the Sunne; which is the remarkable measure of time, and within the compasse whereof we receive our perfection in the wombe. So that by this

this construction, the years of a Deere should be but thirty six, as is discoursed at large in that Tract of Plutarch, concerning the cessation of Oracles; and whereto in his Discourse of the Crow, Aldrovandus also inclineth. Others not able to make it out, have rejected the whole account, as may be observed from the words of Pliny, *Hesiodus qui primus aliquid de longevitate vite prodidit, fabulose (reor) multa de hominum aeo referens, cornici novem nostras attribuit etates, quadruplum ejus cervis, id triplicatum corvis, & reliqua fabulosius de Phanice & nymphis*; and this how slender soever, was probably the strongest ground Antiquity had for this longevity of Animals; that made Theophrastus expostulate with Nature concerning the long life of Crows; that begat that Epethete of Deere in Oppianus, and that expression of Juvenal

— *Longa & cervina senectus.*

The third ground was Philosophicall and founded upon a probable reason in nature, that is, the defect of a Gall, which part (in the opinion of Aristotle and Pliny) this Animall wanted, and was conceived a cause and reason of their long life; according (say they) as it happeneth unto some few men, who have not this part at all. But this assertion is first defective in the verity concerning the Animall alledged: for though it be true, a Deere hath no gall in the liver like many other Animals, yet hath it that part in the guts as is discoverable by taste and colour: and therefore Pliny doth well correct himself, when having affirmed before it had no gall, he after saith, some hold it to be in the guts, and that for their bitternesse, dogges will refuse to eat them. It is also deficient in the verity of the Induction or connumeration of other Animals conjoined herewith, as having also no gall; that is, as Pliny accounteth, *Equi, Muli, &c.* Horses, Mules, Asses, Deer, Goats, Boars, Camels, Dolphins, have no gall. Concerning Horses, what truth there is herein we have declared before; as for Goats we finde not them without it; what gall the Camell hath, Aristotle declareth; that Hogs also have it, we can affirm; and that not in any obscure place, but in the liver, even as it is seated in man.

That therefore the Deer is no short-liv'd Animall, we will acknowledge; that comparatively, and in some sense long-liv'd we will concede; and thus much we shall grant if we commonly account its daies by thirty six or fourty; for thereby it will exceed all other cornigerous Animals. But that it attaineth unto hundreds, or the years delivered by Authors; since we have no authentick experience for it, since we have reason and common experience against it, since the grounds are false and fabulous which doe establish it, we know no ground to assent.

Concerning Deer there also passeth another opinion, that the males thereof doe yearly lose their pizzell. For men observing the decidence of their hornes, doe fall upon the like conceit of this part, that it annually rotteth away, and successively reneweth again. Now the ground hereof, was surely the observation of this part in Deer after immoderate venery, and about the end of their Rutt, which sometimes becomes so relaxed and pendulous, it cannot be quite retracted; and being often beset with flies, it is conceived to rot, and at last to fall from the body. But herein experience will contradict us: for Deer which either die or are killed at that time, or any other, are alwaies found to have that part entire. And reason also will correct us; for spermaticall parts, or such as are framed from the seminall principles of parents, although homogeneous or similiary, will not admit a Regeneration; much lesse will they receive an integrall restauration, which being organicall and instrumentall members, consist of many of those. Now this part, or Animall of Plato, containeth not only sanguineous and reparable particles; but

τὸ μακροχρόνιον.

88.

122.

60 but is made up of veines, nerves, arteries, and in some Animals, of bones; whose reparation is beyond its own fertility, and a fruit not to be expected from the fructifying part it self. Which faculty were it communicated unto animals, whose originals are double, as well as unto plants, whose seed is within themselves; we might abate the Art of Taliacotius, and the new in-arching of noses. And therefore the phantasies of Poets have been so modest, as not to set down such renovations, even from the powers of their deities; for the mutilated shoulder of Pelops was pieced out with Ivory; and that the limbs of Hyppolitus were set together, not regenerated by Æsculapius, is the utmost assertion of Poetry.

CHAP. X.

Of the Kingfisher.

THat a Kingfisher hanged by the bill, sheweth in what quarter the winde is, by an occult and secret propriety, converting the breast to that point of the Horizon from whence the winde doth blow, is a received opinion, and very strange; introducing naturall Weathercocks, and extending magneticall positions as far as animall natures: A conceit supported chiefly by present practice, yet not made out by reason or experience.

Unto reason it seemeth very repugnant, that a carcassee or body disanimat-
ed, should be so affected with every winde, as to carry a conformable respect and constant habitude thereto. For although in sundry animals, we deny not a kinde of naturall Meteorology or innate presentation both of winde and weather; yet that proceeding from sense receiving impressions from the first mutation of the air, they cannot in reason retain that apprehension after death; as being affections which depend on life, and depart upon disanimation. And therefore with more favourable reason may we draw the same effect or sympathie upon the Hedgehog; whose presentation of windes is so exact, that it stoppeth the North or Southern hole of its nest, according to prenotation of these windes ensuing; which some men observing, have been able to make predictions which way the winde would turn, and been esteemed hereby wise men in point of weather. Now this proceeding from sense in the creature alive, it were not reasonable to hang up an Hedgehog dead, and to expect a conformable motion unto its living conversion. And though in sundry plants their vertues doe live after death, and we know that Scammonie, Rhubarbe and Senna will purge without any vitall assistance; yet in animals or sensible creatures, many actions are mixt, and depend upon their living form, as well as that of mistion; and though they wholly seem to retain unto the body, depart upon disunion. Thus Glowewormes alive, project a lustre in the dark, which fulgour notwithstanding ceaseth after death; and thus the Tropedo which being alive stupifies at a distance, applied after death, produceth no such effect; which had they retained, in places where they abound, they might have supplied Opium, and served as frontals in Phrenesies.

As for experiment, we cannot make it out by any we have attempted; for if a single Kingfisher be hanged up with untwisted silk in an open room, and where the air is free, it observes not a constant respect unto the mouth of the winde, but variously converting doth seldome breast it right. If two be suspended in the same room, they will not regularly conform their breasts, but

oft-times

Whence it is, that
some creatures
prefage the
weather.

62. 149.

oft-times respect the opposite points of heaven. And if we conceive that for exact exploration, they should be suspended where the air is quiet and unwov'd, that clear of impediments, they may more freely convert upon their naturall verticity; we have also made this way of inquisition, suspending them in large and capacious glasses closely stopped; wherein neverthelesse we observed a casuall station, and that they rested irregularly upon conversion; wheresoever they rested, remaining inconverted, and possessing one point of the Compasse, whilst the winde perhaps had passed the two and thirty.

The ground of this popular practice might be the common opinion concerning the vertue prognostick of these birds; the naturall regard they have unto the windes, and they unto them again, more especially remarkable in the time of their nidulation, and bringing forth their young; for at that time, which happeneth about the brumall Solstice, it hath been observed even unto a proverb, that the Sea is calm, and the windes do cease, till the young ones are excluded, and forsake their nest, which floateth upon the Sea, and by the roughnesse of windes might otherwise be overwhelmed. But how farre hereby to magnifie their prediction we have no certain rule; for whether out of any particular prenotion they chuse to sit at this time, or whether it be thus contrived by concurrence of causes, and providence of Nature, securing every species in their production, is not yet determined. Surely many things fall out by the design of the generall motor and undreamt of contrivance of Nature, which are not imputable unto the intention or knowledge of the particular Actor. So though the feminality of Ivy be almost in every earth, yet that it ariseth and groweth not, but where it may be supported; we cannot ascribe the same unto the distinction of the seed; or conceive any science therein which suspends and conditionates its eruption. So if, as Pliny and Plutarch report, the Crocodiles of Ægypt, so aptly lay their egges, that the natives thereby are able to know how high the floud will attain; it will be hard to make out, how they should divine the extent of the inundation, depending on causes so many miles remote; that is, the measure of showers in Æthiopia; and whereof, as Athanasius in the life of Anthony delivers, the devil himself upon demand could make no clear prediction. So are there likewise many things in Nature, which are the forerunners or signes of future effects, whereto they neither concur in causality or prenotion; but are secretly ordered by the providence of causes, and concurrence of actions collaterall to their signations.

It was also a custome of old to keep these birds in chests, upon opinion that they prevented moths; whether it were not first hang'd up in roomes to such effects, is not beyond all doubt; or whether we mistake not the posture of suspension, hanging it by the bill, whereas we should doe it by the back; that by the bill it might point out the quarters of the winde; for so hath Kircherus described the Orbis and the Sea Swallow. But the eldest custome of hanging up these birds was founded upon a tradition that they would renew their feathers every year as though they were alive: In expectation whereof four hundred years ago Albertus Magnus was deceived.

Commonly mistaken for the true *Halcion*, ours being rather the *Ipida*.

Of Nilus too much. 265.

CHAP. XI.

of Griffins.

THAT there are Griffins in Nature, that is, a mixt and dubious Animall, in the fore-part resembling an Eagle, and behinde, the shape of a Lion, with erected eares, four feet, and a long taile, many affirm, and most, I perceive, deny not. The same is averred by *Ælian*, *Solinus*, *Mela* and *Herodotus*, countenanced by the name sometimes found in Scripture, and was an Hieroglyphick of the Egyptians.

Notwithstanding we finde most diligent enquiries to be of a contrary assertion; for beside that *Albertus* and *Pliny* have disallowed it, the learned *Aldrovandus* hath in a large discourse rejected it; *Mathias Michovius* who writ of those Northern parts where men place these Griffins, hath positively concluded against it; and if examined by the doctrine of Animals, the invention is monstrous, nor much inferiour unto the figment of *Sphynx*, *Chimara* and *Harpies*. For though some species there be of middle and participating natures, that is, of bird and beast, as *Bats* and some few others, yet are their parts so conformed and set together, that we cannot define the beginning or end of either; there being a commixtion of both in the whole, rather then an adaptation or cement of the one unto the other.

Levit. 11.

Now for the word *gryps* or *Gryps*, sometimes mentioned in Scripture, and frequently in humane Authors, properly understood, it signifies some kinde of Eagle or Vulture; from whence the Epithete *Grypus* for an hooked or Aquiline nose. Thus when the Septuagint makes use of this word, *Tremellius* and our Translation hath rendred it the *Ossifrage*; which is one kinde of Eagle. And although the Vulgar translation, and that annexed unto the Septuagint retain the word *Gryps*, which in ordinary and school-construction is commonly rendred a Griffin; yet cannot the Latine assume any other sense then the Greek, from whence it is borrowed. And though the Latine *Gryphes* be altered somewhat by the addition of an h, or aspiration of the letter *π*, yet is not this unusuall; so what the Greeks call *γρυπαιον*, the Latines will call *Tropheum*, and that person which in the Gospel is named *Κλεοπας*, the Latines will render *Cleophas*. And therefore the quarrell of *Origen* was unjust and his conception erroneous, when he conceived the food of Griffins forbidden by the Law of *Moses*; that is, poeticall Animals, and things of no existence. And therefore when in the *Hecatombs* and mighty oblations of the Gentiles, it is delivered they sacrificed *Gryphes* or Griffins; hereby we may understand some stronger sort of Eagles. And therefore also when its said in *Virgil* of an improper match, or *Mopsus* marrying *Nyssa*, *Jungentur jam gryphes equis*; we need not hunt after other sense, then that strange unions shall be made, and differing natures be conjoined together.

As for the testimonies of ancient Writers, they are but derivative, and terminate all in one *Aristeus* a Poet of *Proconesus*; who affirmed that neer the *Arimaspi*, or one eyed Nation, Griffins defended the mines of gold. But this as *Herodotus* delivereth, he wrote by hearsay; and *Michovius* who hath expressly written of those parts plainly affirmeth, there is neither gold nor Griffins in that countrey, nor any such Animall extant; for so doth he conclude, *Ego vero contra veteres authores, Gryphes nec in illa septentrionis, nec in aliis orbis partibus inveniri affirmarim.*

Lastly,

Lastly, Concerning the Hieroglyphicall authority, although it neereſt approacheth the truth, it doth not inferre its exiſtency; the conceit of the Griffin properly taken being but a ſymbolicall phancy, in ſo intolerable a ſhape including allowable morality. So doth it well make out the properties of a Guardian, or any perſon entrusted; the ears implying attention, the wings celerity of execution, the Lion-like ſhape, courage and audacity, the hooked bill, reſervance and tenacity. It is alſo an Embleme of valour and magnanimity; as being compounded of the Eagle and Lion, the nobleſt Animals in their kindes; and ſo is it applicable unto Princes, Prefidents, Generals, and all heroick Commanders; and ſo is it alſo born in the Coat-armes of many noble Families of Europe.

220.

CHAP. XII.

of the Phanix.

ſe. Bacon in his *Tract. Hiſtory*
Cap. 37. ſayth *J. Olym. C.*
habet e. murelos hant no dgeri:
minato ſoc. 50 E. los Dic. 110.

THat there is but one Phanix in the world, which after many hundred years burneth it ſelf, and from the aſhes thereof ariſeth up another, is a conceit not new or altogether popular, but of great Antiquity; not only delivered by humane Authors, but frequently expreſſed by holy Writers; by Cyril, Epiphanius and others, by Ambroſe in his *Hexameron*, and Tertul. in his Poem *de Judicio Domini*, but more agreeably unto the preſent ſenſe, in his excellent Tract, *de Reſur. carnis*. *Illum dico alitem orientis peculiarem, de ſingularitate famoſum, de poſteritate monſtruoſum; qui ſemetipſum libenter funerans renovat, natali ſine decedens, atque ſuccedens iterum Phanix. Ubi jam nemo, iterum ipſe; quia non jam, alius idem.* The Scripture alſo ſeems to favour it, particularly that of Job 21. in the Interpretation of Beda, *Dicebam in nidulo meo moriar, & ſicut Phanix multiplicabo dies:* and *Pſalme 31. Dux & ἀντιπρὸς ἐδμήξ ἀρθήσεται, vir juſtus ut Phanix florebit,* as Tertullian renders it, and ſo alſo expounds it in his book before alledged.

All which notwithstanding, we cannot preſume the exiſtence of this Animall; nor dare we affirm there is any Phanix in Nature. For, firſt there wants herein the definitive confirmator and teſt of things uncertain, that is, the ſenſe of man. For though many Writers have much enlarged hereon, there is not any ocular deſcriber, or ſuch as preſumeth to confirm it upon aſpection; And therefore Herodotus that led the ſtory unto the Greeks, plainly ſaith, he never attained the ſight of any, but only in the picture.

Against the ſtory
 of the Phanix.

94.

Again, Primitive Authors, and from whom the ſtream of relations is derivative, deliver themſelves very dubiouſly; and either by a doubtfull parentheſis, or a timorous concluſion overthrow the whole relation. Thus Herodotus in his *Euterpe*, delivering the ſtory hereof, preſently interpoſeth, *ἐν οὗ μιν οὐ πῖσι λέγοντες*; that is, which account ſeems to me improbable. Tacitus in his *Annals* affordeth a larger ſtory; how the Phanix was firſt ſeen at Heliopolis in the reign of Sefoſtris, then in the reign of Amafiſ, after in the daies of Ptolomy, the third of the Macedonian race; but at laſt thus determineth, *Sed Antiquitas obſcura; & nonnulli falſum eſſe hunc Phanicem, neque Arabum è terris credidere.* Pliny makes yet a fairer ſtory; that the Phanix flew into Egypt in the Conſulſhip of Quintus Plancius, that it was brought to Rome in the Cenſorſhip of Claudius, in the eight hundred year of the City, and teſtified alſo in their records; but after all concludeth, *Sed quæ*

Jaculus Annali lib. 6.

falsa esse nemo dubitabit, but that this is false no man will make doubt.

Moreover, Such as have naturally discoursed hereon, have so diversly, contrarily, or contradictorily delivered themselves, that no affirmative from thence can reasonably be deduced. For most have positively denied it, and they which affirm and beleeve it, assign this name unto many, and mistake two or three in one. So hath that bird been taken for the Phœnix which liveth in Arabia, and buildeth its nest with Cinnamon; by Herodotus called *Cinnamulgus*, and by Aristotle *Cinnamomus*, and as a fabulous conceit is censured by Scaliger. Some have conceived that bird to be the Phœnix, which by a Persian name with the Greeks is called Rhyntace; but how they made this good we finde occasion of doubt; whilst we reade in the life of Artaxerxes, that this is a little bird brought oftento their tables, and where-
 322 with Parysatis cunningly poisoned the Queen. The Manucodiata or bird of Paradise, hath had the honour of this name, and their feathers brought from the Molucca's, doe passe for those of the Phœnix; which though promoted by rarity with us, the Eastern travellers will hardly admit; who know they are common in those parts, and the ordinary plume of Janizaries among the Turks. And lastly, the bird Semenda hath found the same appellation, for so hath Scaliger observed and refuted; nor will the solitude of the Phœnix allow this denomination; for many there are of that species, and whose trifling bill and crany we have beheld our selves. Nor are men only at variance in regard of the Phœnix it self, but very disagreeing in the accidents ascribed thereto: for some affirm it liveth three hundred, some five, others six, some a thousand, others no lesse then fifteen hundred years; some say it liveth in Æthiopia, others in Arabia, some in Ægypt, others in India, and some in Utopia; for such must that be which is described by Lactantius; that is, which neither was singed in the combustion of Phaeton, or overwhelmed by the inundation of Deucalion.

Lastly, Many Authors who have discoursed hereof, have so delivered themselves, and with such intentions, we cannot from thence deduce a confirmation. For some have written Poetically as Ovid, Mantuan, Lactantius, Claudian and others: Some have written mystically, as Paracelsus in his book *de Azoth*, or *de ligno & linea vite*; and as severall Hermeticall Philosophers, involving therein the secret of their Elixir, and enigmatically expressing the nature of their great work. Some have written Rhetorically, and concessively, not controverting but assuming the question, which taken as granted advantaged the illation. So have holy men made use hereof as farre as thereby to confirm the Resurrection; for discoursing with heathens who granted the story of the Phœnix, they induced the Resurrection from principles of their own, and positions received among themselves. Others have spoken Emblematically and Hieroglyphically; and so did the Egyptians, unto whom the Phœnix was the Hieroglyphick of the Sunne. And this was probably the ground of the whole relation; succeeding ages adding fabulous accounts, which laid together built up this singularity, which every pen proclaimeth.

As for the Texts of Scripture, which seem to confirm the conceit, duly perpended they adde not thereunto. For whereas in that of Job, according to the Septuagint or Greek Translation we finde the word Phœnix, yet can it have no animall signification; for therein it is not expressed *φœnix* but *σάκεος φάινος*, the trunk of the Palme tree, which is also called Phœnix; and therefore the construction will be very hard, if not applied unto some vegetable nature; nor can we safely insist upon the Greek expression at all: for though the Vulgar translates it *Palma*, and some retain the word Phœnix,

Phænix, others doe render it by a word of a different sense; for so hath Tremellius delivered it: *Dicebam quod apud nidum meum expirabo, & sicut arena multiplicabo dies*; so hath the Geneva and ours translated it, I said I shall die in my nest, and shall multiply my daies, as the sand. As for that in the book of Psalmes, *Vir justus ut Phænix florebit*, as Epiphanius and Tertullian render it, it was only a mistake upon the homonymy of the Greek word Phænix, which signifies also a Palm tree; which is a fallacy of equivocation, from a community in name inferring a common nature, and whereby we may as firmly conclude, that Diaphanicon a purging electuary hath some part of the Phænix for its ingredient; which receiveth that name from Dates, or the fruit of the Palme tree, from whence as Pliny delivers, the Phænix had its name.

Consent of
names.

Nor doe we only arraigne the existence of this Animall, but many things are questionable which are ascribed thereto, especially its unity, long life, and generation. As for its unity or conceit there should be but one in nature, it seemeth not only repugnant unto Philosophy, but also holy Scripture; which plainly affirms, there went of every sort two at least into the Ark of Noah, according to the text, Gen. 7. Every fowle after his kinde, every bird of every sort, they went into the Ark, two and two of all flesh, wherein there is the breath of life, and they that went in, went in both male and female of all flesh. It infringeth the Benediction of God concerning multiplication, Gen. 1. God blessed them saying, Be fruitfull and multiply, and fill the waters in the seas, and let fowl multiply in the earth; and again, Chap. 8. Bring forth with thee, every living thing that they may breed abundantly in the earth, and be fruitfull and multiply upon the earth; which terms are not appliable unto the Phænix, whereof there is but one in the world, and no more now living then at the first benediction. For the production of one, being the destruction of another, although they produce and generate, they encrease not; and must not be said to multiply, who doe not transcend an unity.

224.

As for longevity, that it liveth a thousand years or more; beside that from imperfect observations and rarity of appearance, no confirmation can be made; there may be probably a mistake in the compute. For the tradition being very ancient and probably Egyptian, the Greeks who dispersed the fable, might summe up the account by their own numeration of years, whereas the conceit might have its originall in times of shorter compute. For if we suppose our present calculation, the Phænix now in nature will be the sixt from the Creation; but in the middle of its years; and if the Rabbines prophecy succeed, shall conclude its daies, not in its own, but the last and generall flames, without all hope of Reviviction.

That the
world should
last but six
thousand years.

Concerning its generation, that without all conjunction it begets and re-feminates it self; hereby we introduce a vegetable production in Animals, and unto sensible natures, transerre the propriety of plants; that is to multiply within themselves, according to the law of the Creation, Gen. 1. Let the earth bring forth grasse, the herb yeelding seed, and the tree yeelding fruit, whose seed is in it self. Which is indeed the naturall way of plants, who having no distinction of sex, and the power of the species contained in every *individuum*, beget and propagate themselves without commixtion; and therefore their fruits proceeding from simpler roots, are not so unlike, or distinguishable from each other, as are the off-springs of sensible creatures and proliferations descending from double originals. But Animall generation is accomplished by more; and the concurrence of two sexes is required to the constitution of one. And therefore such as have no distinction of sex,

98. 224.

engender not at all, as Aristotle conceives of Eeles, and testaceous Animals. And though plant-animals doe multiply, they doe it not by copulation, but in a way analogous unto plants. So Hermaphrodites although they include the parts of both sexes, and may be sufficiently potent in either; yet unto a conception require a separated sex, and cannot impregnate themselves; and so also though Adam included all humane nature, or was (as some opinion) an Hermaphrodite, yet had he no power to propagate himself; and therefore God said, It is not good that man should be alone, let us make him an help meet for him; that is, an help unto generation; for as for any other help, it had been fitter to have made another man.

Now whereas some affirm that from one Phœnix there doth not immediatly proceed another, but the first corrupteth into a worm, which after becometh a Phœnix, it will not make probable this production. For hereby they confound the generation of perfect animals with imperfect, sanguineous with exanguious, vermiparous with oviparous, and erect Anomalies, disturbing the laws of Nature. Nor will this corruptive production be easily made out in most imperfect generations; for although we deny not that many animals are vermiparous, begetting themselves at a distance, and as it were at the second hand (as generally insects, and more remarkably Butterflies and silkworms) yet proceeds not this generation from a corruption of themselves, but rather a specificall and seminall diffusion, retaining still the Idea of themselves, though it act that part a while in other shapes. And this will also hold in generations equivocall, and such are not begotten from Parents like themselves; so from Frogs corrupting, proceed not Frogs again; so if there be anatisferous trees, whose corruption breaks forth into Bernacles, yet if they corrupt, they degenerate into Maggots, which produce not them again; for this were a confusion of corruptive and seminall production, and a frustration of that seminall power committed to animals at the creation. The probleme might have been spared, Why we love not our Lice as well as our Children? Noahs Ark had been needlesse; the graves of animals would be the fruit-fullest wombs; for death would not destroy, but empeople the world again.

Since therefore we have so slender grounds to confirm the existence of the Phœnix; since there is no ocular witness of it; since as we have declared, by Authors from whom the Story is derived, it rather stands rejected; since they who have seriously discoursed hereof, have delivered themselves negatively, diversly or contrarily; since many others cannot be drawn into Argument, as writing Poetically, Rhetorically, Enigmatically, Hieroglyphically; since holy Scripture alledged for it duely perpended, doth not advantage it; and lastly since so strange a generation, unity and long life, hath neither experience nor reason to confirm it; how far to rely on this tradition, we refer unto consideration.

But surely they were not well-wishers unto parable Physick, or remedies easily acquired, who derived medicines from the Phœnix; as some have done, and are justly condemned by Pliny; *Irridere est vita, remedia post millesimum annum reditura monstrare*; It is a folly to finde out remedies that are not recoverable under a thousand years; or propose the prolonging of life by that which the twentieth generation may never behold. More veniable is a dependance upon the Philosophers stone, potable gold, or any of those Arcana's, whereby Paracelsus that died himself at forty seven, gloried that he could make other men immortall; which, although extreemly difficult, and *tantum non* infesible, yet are they not impossible; nor doe they (rightly understood) impose any violence on Nature. And therefore if strictly taken for

121.
bid: infra. 121

Irregularities.

152

76.

The authors Phœnix
is a story of a
bird is count.

universa

See his relig. mod. 85. at
his first 50

The authors thought of the
philosophers stone. 138.

for the Phœnix, very strange is that which is delivered by Plutarch, That the brain thereof is a pleasant bit, but that it causeth the head-ach; which notwithstanding the luxurious Emperour could never taste; though he had at his table many a Phœnicopterus, yet had he not one Phœnix; for though he expected and attempted it, we reade not in Lampridius that he performed it; and considering the unity thereof, it was a vain designe, that is, to destroy any species, or mutilate the great accomplishment of six daies. And although some conceive, and it may seem true, that there is in man a naturall possibility to destroy the world in one generation, that is, by a generall conspire to know no woman themselves, and disable all others also; yet will this never be effected; and therefore Cain after he had killed Abel, were there no other woman living, could not have also destroyed Eve; which although he had a naturall power to effect, yet the execution thereof, the providence of God would have resisted; for that would have imposed another creation upon him, and to have animated a second rib of Adam.

*De sanitate tes-
canda
Herzogabatus.*

*vid. infra
201.
art. 2.9.
253. f.*

CHAP. XIII.

Of Frogs, Toades and Toad-stone.

Concerning the venomous urine of Toads, of the stone in the Toads head, and of the generation of Frogs, conceptions are entertained which require consideration. And first, that a Toad pisseth, and this way diffuseth its venome, is generally received, not only with us, but also in other parts; for so hath Scaliger observed in his Comment, *Aversum urinam reddere ob oculos persecutoris perniciosam ruricolis persuasum est*; and Mathiolus hath also a passage, that a Toad communicates its venom, not only by urine, but by the humidity and slaver of its mouth; which notwithstanding strictly understood, will not consist with truth. For to speak properly, a Toad pisseth not; nor doe they contain those urinary parts which are found in other animals, to avoid that serous excretion; as may appear unto any that exenterates or dissects them; for therein will be found neither bladder, kidneys or ureters, any more then they are in birds; who for the moist and dry excretion, have but one vent and common place of exclusion; and with the same propriety of language, we may ascribe that action unto Crows and Kites. And this is verified not only in Frogs and Toades, but that may be true which Aristotle affirmeth, that no oviparous animall, that is, which either spawn or lay egges doth urine, except the Tortois.

135.

The ground or occasion of this expression might from hence arise, that Toades are sometimes observed to exclude or spirt out a dark and liquid matter behinde; which we have observed to be true, and a venomous condition there may be perhaps therein, but it cannot be called their urine; not only because they want those parts of secretion; but because it is emitted averily or backward, by both sexes.

As for the stone commonly called a Toad-stone, which is presumed to be found in the head of that animall, we first conceive it not a thing impossible; nor is there any substantiall reason, why in a Toad, there may not be found such hard and lapideous concretions; for the like we daily observe in the heads of Fishes, as Codds, Carps and Peaches; the like also in Snails, a soft and exosseous animall, whereof in the naked and greater sort, as though she would requite the defect of a shell on their back, nature neere the head hath placed

placed a flat white stone, or rather testaceous concretion; which though Aldrovandus affirms, that after dissection of many, he found but in some few; yet of the great gray Snail, I have not met with any that wanted it; and the same indeed so palpable, that without dissection it is discoverable by the hand.

Again, though it be not impossible, yet it is surely very rare; as we are induced to believe from some enquiry of our own; from the trial of many who have been deceived; and the frustrated search of Porta, who upon the exploiment of many, could scarce finde one. Nor is it only of rarity, but may be doubted whether it be of existency, or really any such stone in the head of a Toad at all. For although Lapidaries, and questuary enquirers affirm it, yet the writers of Mineralls and naturall speculators, are of another belief; conceiving the stones which bear this name, to be a Minerall concretion, not to be found in animals, but in fields; and therefore Boetius refers it to Asteria, or some kinde of *Lapis stellaris*, and plainly concludeth, *Reperiuntur in agris, quos tamen alij in annosis, ac qui diu in Arundinetis, inter rubos sentesque delituerunt, bufonis capitibus generari pertinaciter affirmant.*

Lastly, If any such thing there be, yet must it not for ought I see, be taken as we receive it, for a loose and moveable stone, but rather a concretion or induration of the crany it self; for being of an earthy temper, living in the earth, and as some say feeding thereon, such indurations may sometimes happen; thus when Brassavolus after a long search had discovered one, he affirms it was rather the forehead bone petrified, then a stone within the crany; and of this belief was Gesner. Which is also much confirmed from what is delivered in Aldrovandus, upon experiment of very many Toades; whose cranies or skuls in time grew hard, and almost of a stony substance. All which considered, we must with circumspection receive those stones, which commonly bear this name; muchlesse beleve the traditions, that in envy to mankind they are cast out, or swallowed down by the Toad; which cannot consist with Anatomy, and with the rest, enforced this censure from Boetius, *Ab eo tempore pro nugis habui quod de Bufonio lapide, ejusq; origine traditur.*

What therefore best reconcileth these divided determinations, may be a middle opinion; that of these stones some are minerall, and to be found in the earth; some animall, to be met with in Toads, at least by the induration of their cranies. The first are many and manifold, to be found in Germany and other parts; the last are fewer in number, and in substance not unlike the stones in Carps heads. This is agreeable unto the determination of Aldrovandus, and is also the judgement of learned Spigelius in his Epistle unto Pignorius.

Concerning the generation of Froggs, we shall briefly deliver that account which observation hath taught us. By Froggs I understand not such as arising from putrefaction, are bred without copulation, and because they subsist not long, are called *Temporaria*; nor doe I mean the little Frogge of an excellent Parrat-green, that usually sits on trees and bushes, and is therefore called *Ranunculus viridis*, or *Arboreus*; but hereby I understand the aquatile or water Frogge, whereof in ditches and standing plashe we may behold many millions every Spring in England. Now these doe not as Pliny conceiveth, exclude black pieces of flesh, which after become Frogges; but they let fall their spawn in the water, which is of excellent use in Physick, and scarce unknown unto any; in this spawn of a lentous and transparant body, are to be discerned many specks, or little conglobations, which in a

small

De Mineral.
lib. 4.
Musci Calceolariani. Sect. 3.

Infusa. 259.

small time become of deep black; a substance more compacted and terrestrial then the other, for it riseth not in distillation, and affords a powder; when the white and aqueous part is exhaled. Now of this black or duskie substance is the Frogge at last formed; as we have beheld, including the spawn with water in a glasse, and exposing it unto the Sunne. For that black and round substance, in a few daies began to dilate and grow ovall, after a while the head, the eyes, the taile to be discernable, and at last to become that which the Ancients called Gyrinus, we a Porwidge or Tadpole. This in some weeks after, becomes a perfect Frogge, the legs growing out before, and the taile wearing away, to supply the other behinde; as may be observed in some, which have newly forsaken the water: for in such, some part of the taile will be seen, but curtal'd and short, not long and finny as before; a part provided them a while to swim and move in the water, that is, untill such time as nature excluded legs, whereby they might be provided not only to swim in the water, but move upon the land, according to the amphibious and mixt intention of nature, that is, to live in both. So that whoever observeth the first progression of the seed before motion, or shall take notice of the strange indistinction of parts in the Tadpole, even when it moveth about, and how successively the inward parts doe seem to discover themselves, untill their last perfection; may easily discern the high curiosity of nature in these inferiour animals, and what a long line is runne to make a Frogge.

And because many affirm, and some deliver, that in regard it hath lungs and breatheth, a Frogge may be easily drowned; though the reason be probable, I finde not the experiment answerable; for fastning one about a span under water, it lived almost six daies. Nor is it only hard to destroy one in water, but difficult also at land: for it will live long after the lunges and heart be out, how long it will live in the seed, or whether the spawn of this year being preserved, will not arise into Frogges in the next, might also be enquired: and we are prepared to trie.

Amphibious
Animals, such
as live in both
elements of
land and wa-
ter.

CHAP. XIV.

Of the Salamander.

THat a Salamander is able to live in flames, to endure and put out fire, is an assertion, not only of great Antiquity, but confirmed by frequent, and not contemptible testimony. The Ægyptians have drawn it into their Hieroglyphicks; Aristotle seemeth to embrace it; more plainly Nicander, Serenus Sammonicus, Ælian and Pliny, who assignes the cause of this effect: An animall (saith he) so cold that it extinguisheth the fire like Ice. All which notwithstanding, there is on the negative Authority and experience; Sextius a Physitian, as Pliny delivereth, denied this effect; Dioscorides affirmed it a point of folly to beleieve it; Galen, that it endureth the fire a while, but in continuance is consumed therein. For experimentall conviction, Mathiolus affirmeth, he saw a Salamander burnt in a very short time; and of the like assertion is Amatus Lusitanus; and most plainly Pierius, whose words in his Hieroglyphicks are these; Whereas it is commonly said, that a Salamander extinguisheth fire, we have found by experience, that 'tis so farre from quenching hot coales; that it dieth immediatly therein. As for the contrary assertion of Aristotle, it is but by hearsay, as common opini-

A corruptive
Medicine de-
stroying the
parts like Ar-
senike.

on beleeveth, *Hac enim (ut aiunt) ignem ingrediens, eum extinguit*; and therefore there was no absurdity in Galen when as a Septicall medicine he commended the ashes of a Salamander; and Magicians in vain from the power of this tradition, at the burning of towns or houses expect a relief from Salamanders.

The ground of this opinion, might be some sensible resistance of fire observed in the Salamander; which being as Galen determineth, cold in the fourth, and moist in the third degree, and having also a mucous humidity above and under the skin, by vertue thereof it may a while endure the flame; which being consumed it can resist no more. Such an humidity there is observed in Newtes, or water-Lizards, especially if their skins be perforated or pricked. Thus will Frogges and Snailles endure the flame, thus will whites of egges, vitreous or glassie flegme extinguish a coal; thus are unguents made which protect a while from the fire; and thus beside the Hirpini there are later stories of men that have pass'd untoucht through fire. And therefore some truth we allow in the tradition; truth according unto Galen, that it may for a time resist a flame, or as Scaliger avers, extinguish or put out a coale; for thus much will many humid bodies perform; but that it perseveres and lives in that destructive element, is a fallacious enlargement; nor doe we reasonably conclude, because for a time it endureth fire, it subdueth and extinguisheth the same; because by a cold and aluminous moisture, it is able a while to resist it: from a peculiarity of nature it subsisteth and liveth in it.

It hath been much promoted by Stories of incombustible napkins and textures which endure the fire, whose materials are call'd by the name of Salamanders wooll. Which many too literally apprehending, conceive some investing part, or regument of the Salamander; wherein beside that they mistake the condition of this Animall (which is a kinde of Lizard, a quadruped eorticated and depilous, that is, without wooll, furre or hair) they observe not the method and generall rule of nature; whereby all Quadrupeds oviparous, as Lizards, Froggs, Tortois, Chameleons, Crocodiles, are without haire, and have no covering part or hairy investment at all. And if they conceive that from the skin of the Salamander, these incremable pieces are composed; beside the experiments made upon the living, that of Brassavolus will step in, who in the search of this truth, did burn the skin of one dead.

Nor is this Salamanders wooll desumed from any Animall, but a Minerall substance Metaphorically so called from this received opinion. For beside Germanicus his heart, and Pyrrhus his great Toe, which would not burn with the rest of their bodies, There are in the the number of Minerals, some bodies incombustible; more remarkably that which the Ancients named Asbeston, and Pancirollus treats of in the chapter of *Linum vivum*: whereof by Art were weaved napkins, shirts and coats inconsumable by fire; and wherein in ancient times, to preserve their ashes pure, and without commixture, they burnt the bodies of Kings. A napkin hereof Pliny reports that Nero had, and the like saith Paulus Venetus, the Emperour of Tartarie, sent unto Pope Alexander; and affirms that in some part of Tartarie, there were Mines of Iron whose filaments were weaved into incombustible cloth. Which rare manufacture, although delivered for lost by Pancirollus, yet Salmuth affirmeth in his comment that one Podocaterus a Cyprian, had shewed the same at Venice; and his materials were from Cyprus, where indeed Dioscorides placeth them; the same is also ocularly confirmed by Vives upon Austin, and Maiolus in his colloquies; and thus in our daies doe men practise to make long-lasting Snafits for lampes, out of

Alumen

Plutarch.
Suetonius.

Alumen plumosum; and by the same we read in Pausanias, that there alwaies burnt a Lamp before the Image of Minerva. 131.

CHAP. XV.

of the *Amphisbæna*.

THat the *Amphisbæna*, that is, a smaller kinde of Serpent, which moveth forward and backward, hath two heads, or one at either extreame, was affirmed first by Nicander, and after by many others; by the Author of the book *de Theriaca ad Pisonem*, ascribed unto Galen; more plainly Pliny, *Geminum habet caput, tanquam parum esset uno ore effundi venenum*: but Ælian most confidently, who referring the conceit of Chimera and Hydra unto fables, hath set down this as an undeniable truth.

Whereunto while men assent, and can beleieve a bicapitous conformation in any continued species, they admit a gemination of principall parts, not naturally discovered in any Animall. True it is that other parts in Animals are not equall, for some make their progression with many legs, even to the number of an hundred, as Juli, Scolopendia, or such as are termed Centipides; some fly with two wings, as birds and many insects, some with four, as all farinaceous or mealy-winged animals, as Butter-flies, and Moths; all vaginipennous or sheathwinged insects, as Beetles and Dorrs. Some have three Testicles, as Aristotle speaks of the Buzzard; and some have four stomachs, as horned and ruminating animals; but for the principall parts, the Liver, heart, and especially the brain, regularly they are but one in any kinde or species whatsoever.

And were there any such species or naturall kinde of animall, it would be hard to make good those six positions of body, which according to the three dimensions are ascribed unto every animall; that is, *infra supra, ante, retro, dextrorsum, sinistrorsum*; for if (as it is determined) that be the anterior and upper part wherein the senses are placed, and that the posterior and lower part which is opposite thereunto; there is no inferiour or former part in this animall; for the senses being placed at both extreames, doe make both ends anterior, which is impossible, the termes being Relative, which mutually subsist, and are not without each other, and therefore this duplicity was ill contrived to place one head at both extreames, and had been more tolerable to have settled three or four at one; and therefore also Poets have been more reasonable then Philosophers, and Geryon or Cerberus lesse monstrous then *Amphisbæna*.

Again, If any such thing there were, it were not to be obtruded by the name of *Amphisbæna*, or as an animall of one denomination; for properly that animall is not one, but multiplicitous or many, which hath a duplicity or gemination of principall parts. And this doth Aristotle define, when he affirmeth a monster is to be esteemed one or many, according to it's principle, which he conceived the heart, whence he derived the originall of Nerves, and thereto ascribed many acts which Physitians assign unto the brain: and therefore if it cannot be called one, which hath a duplicity of hearts in his sense, it cannot receive that appellation with a plurality of heads in ours. And this the practice of Christians hath acknowledged, who have baptized these geminous births, and double connascencies with severall names; as conceiving in them a distinction of souls, upon the divided execution of their functions;

tions; that is, while one wept, the other laughing, while one was silent, the other speaking, while one awaked, the other sleeping; as is declared by three remarkable examples in Petrarch, Vincentius, and the Scottish history of Buchanan.

It is not denied there have been bicapitous Serpents with the head at each extrem, for an example hereof we finde in Aristotle, and of the like form in Aldrovandus we meet with the Icon of a Lizzard; which double formations do often happen unto multiparous generations, more especially that of Serpents; whose conceptions being numerous, and their Eggs in chains or links together (which sometime conjoin and inoculate into each other) they may unite into various shapes, and come out in mixed formations. But these are monstrous productions, and beside the intention of nature, and the statutes of generation, neither begotten of like parents, nor begetting the like again, but irregularly produced do stand as Anomalies in the generall book of Nature. Which being the shifts and forced pieces, rather than the genuine and proper effects, they afford us no illation; nor is it reasonable to conclude, from a monstrosity unto a species, or from accidentall effects, unto the regular works of Nature.

Lastly, the ground of the conceit was the figure of this animall, and motion oft times both waies; for described it is to be like a worme, and so equally framed at both extremes, that at an ordinary distance it is no easie matter, to determine which is the head; and therefore some observing them to move both waies, have given the appellation of heads unto both extreames; which is no proper and warrantable denomination; for many animals with one head, doe ordinarily perform both different and contrary motions; Crabs move sideling, Lobsters will swim swiftly backward, Wormes and Leeches will move both waies; and so will most of those animals, whose bodies consist of round and annulary fibers, and move by undulation, that is, like the waves of the Sea, the one protruding the other, by inversion whereof they make a backward motion.

Upon the same ground hath arisen the same mistake concerning the Scolopendra or hundred-footed insect, as is delivered by Rhodiginus from the scholiast of Nicander: *Dicitur à Nicandro, ἀμφίκεφαλος, id est dicephalus aut biceps fictum vero, quoniam retrorsum (ut scribit Aristoteles) arrepsit*, observed by Aldrovandus, but most plainly by Maffetus, who thus concludeth upon the text of Nicander: *Tamen pace tanti authoris dixerim, unicum illi duntaxat caput licet pari facilitate, prorsum capite, retrorsum ducente cauda, incedat, quod Nicandro alijsque imposuisse dubito*: that is, under favour of so great an Author, the Scolopendra hath but one head, although with equall facility it moveth forward and backward, which I suspect deceived Nicander and others.

CHAP. XVI.

Of the Viper.

THat the young Vipers force their way through the bowels of their Dam, or that the female Viper in the act of generation bites off the head of the male, in revenge whereof the young ones eat through the wombe and belly of the female, is a very ancient tradition; in this sense entertained in the Hieroglyphicks of the Egyptians; affirmed by Herodotus, Nicander, Pliny, Plutarch,

See good matter to this purpose. 98

96.

102.

Plutarch, Ælian, Jerome, Basil, Isidore, seems countenanced by Aristotle, and his scholar Theophrastus; from hence is commonly assigned the reason why the Romanes punished parricides by drowning them in a sack with a Viper; and so perhaps upon the same opinion the men of Melita when they saw a Viper upon the hand of Paul, said presently without conceit of any other sinne, No doubt this man is a murtherer; whom though he have escaped the Sea, yet vengeance suffereth him not to live. That is, he is now paid in his own way, the parricidous animall and punishment of murtherers is upon him; and though the Tradition were currant among the Greeks, to confirm the same the Latine name is introduced, *Vipera quasi vi pariat*; That passage also in the Gospel, O ye generation of Vipers, hath found expositions which countenance this conceit. Notwithstanding which authorities, transcribed relations and conjectures, upon enquiry we finde the same repugnant unto experience and reason.

And first it seems not only injurious unto the providence of Nature, to ordain a way of production which should destroy the producer, or contrive the continuation of the species by the destruction of the continuator; but it overthrowes and frustrates the great Benediction of God, which is expressed, Gen. 1. God blessed them saying, Be fruitfull and multiply. Now if it be so ordained that some must regularly perish by multiplication, and these be the fruits of fructifying in the Viper; it cannot be said that God did blesse, but curse this Animall; upon thy belly shalt thou go, and dust shalt thou eat all thy life, was not so great a punishment unto the Serpent after the fall, as encrease, be fruitfull and multiply, was before. This were to confound the maledictions of God, and translate the curse of the Woman upon the Serpent; that is, *in dolore paries*, in sorrow shalt thou bring forth; which being proper unto the woman, is verified best in the Viper, whose delivery is not only accompanied with pain, but also with death it self. And lastly, it overthrowes the carefull course, and parentall provision of nature, whereby the young ones newly excluded are sustained by the Dam; and protected untill they grow up to a sufficiency for themselves. All which is perverted in this eruptive generation; for the Dam being destroyed, the younglings are left to their own protection; which is not conceivable they can at all perform, and whereof they afford us a remarkable confirmance many daies after birth; for the young ones supposed to break through the belly of the Dam, will upon any fright for protection run into it; for then the old one receives them in at her mouth, which way the fright being past they will return again; which is a peculiar way of refuge; and though it seem strange is avowed by frequent experience and undeniable testimony.

As for the experiment although we have thrice attempted it, it hath not well succeeded; for though we feed them with milk, branne, cheese, &c. the females alwaies died before the young ones were mature for this eruption, but rest sufficiently confirmed in the experiments of worthy enquirers: Wherein to omit the ancient conviction of Apollonius, we shall set down some few of modern Writers. The first, of Amatus Lusitanus in his comment upon Dioscorides, *Vidimus nos viperas pregnantes inclusas pixidibus parere, quæ inde ex partu nec mortuæ, nec visceribus perforatæ manserunt*. The second is that of Scaliger, *Viperas ab impatientibus mora fatibus numerosissimis rumpi atque interire falsum esse scimus, qui in Vincentii Camerini circulatoris lignæ thecæ vidimus enatas viperellas, parente salva*. The last and most plain of Franciscus Bustamantinus, a Spanish Physitian of Alcala de Henares, whose words in his third *de Animantibus Scriptura*, are these: *Cum vero per me & per alios hæc ipsa disquisissem servata Viperina progenie, &c.*

That Vipers exclude their young ones by an ordinary passage, as other viviparous creatures:

that is, when by my self and others I had enquired the truth hereof, including Vipers in a glasse, and feeding them with cheese and branne, I undoubtedly found that the Viper was not delivered by the tearing of her bowels, but I beheld them excluded by the passage of generation, near the orifice of the seidge.

Now although the Tradition be untrue, there wanted not many grounds which made it plausibly received. The first was a favourable indulgence and speciall contrivance of nature; which was the conceit of Herodotus, who thus delivereth himself. Fearfull Animals, and such as serve for food, nature hath made more fruitfull; but upon the offensive and noxious kinde, she hath not conferred fertility. So the Hare that becometh a prey unto man, unto beasts, and fowles of the air, is fruitfull even to superfatation; but the Lyon a fierce and ferocious Animall hath young ones but teldome, and also but one at a time; Vipers indeed, although destructive, are fruitfull; but lest their number should encrease, providence hath contrived another way to abate it; for in copulation the female bites off the head of the male, and the young ones destroy the mother. But this will not consist with reason as we have declared before. And if we more nearly consider the condition of Vipers and noxious Animals, we shall discover an higher provision of nature; how although in their paucity she hath not abridged their malignity, yet hath she notoriously effected it by their secession or latitancy. For not only offensive insects as Hornets, Waspes, and the like; but sanguineous corticated Animals, as Serpents, Toads and Lizards, doe lie hid and betake themselves to coverts in the Winter; whereby most countries enjoying the immunity of Ireland and Candie, there ariseth a temporall security from their venom; and an intermission of their mischiefs, mercifully requiting the time of their activities.

A second ground of this effect, was conceived the justice of Nature, whereby she compensates the death of the father by the matricide or murder of the mother; and this was the expression of Nicander; but the cause hereof is as improbable as the effect; and were indeed an improvident revenge in the young ones, whereby in consequence, and upon defect of provision they must destroy themselves. And whereas he expresseth this decollation of the male by so full a term as ἀποτομή, that is, to cut or lop off, the act is hardly conceivable; for the female Viper hath but four considerable teeth, and those so disposed, so slender and needle-pointed, that they are apter for puncture then any act of incision. And if any like action there be, it may be only some fast retention or sudden compression in the Orgasmus or fury of their lust; according as that expression of Horace is construed concerning Lydia and Telephus

— Sive puer furens,

Impressit memorem dente labris notam.

Others ascribe this effect unto the numerous conception of the Viper; and this was the opinion of Theophrastus; who though he denieth the exsion or forcing through the belly, conceiveth neverthelesse that upon a full and plentifull impletion there may perhaps succeed a disraption of the matrix, as it happeneth sometimes in the long and slender fish Acus. Now although in hot Countries, and very numerous conceptions, in the Viper or other Animals, there may sometimes ensue a dilaceration of the genitall parts; yet is this a rare and contingent effect, and not a naturall and constant way of exclusion. For the wise Creator hath formed the organs of Animals unto their operations; and in whom he ordaineth a numerous conception, in them he hath prepared convenient receptacles, and a sutable way of exclusion.

Found sometimes upon the sea shore, consisting of four lines unto the vent, and six from thence unto the head.

Others

Others doe ground this disraption upon their continued or protracted time of delivery; presumed to last twenty daies; whereat, excluding but one a day, the latter brood impatient, by a forcible prurption anticipate their period of exclusion; and this was the assertion of Pliny; *Ceteri tarditatis impatientes prorumpunt latera, occisâ parente*; which was occasioned upon a mistake of the Greek text in Aristotele, *τίκται δὲ τὸ μὲν ἡμέρα καὶ τὸ τίκται δὲ μέγα ἢ ἑβδομήν*, which are literally thus translated, *Parit autem una die secundum unum, parit autem plures quam viginti*, and may be thus Englished, She bringeth forth in one day, one by one, and sometimes more then twenty; and so hath Scaliger rendred it, *Sigillatim parit, absolvit una die interdum plures quam viginti*: But Pliny whom Gaza followeth hath differently translated it, *Singulos diebus singulis parit, numero fere viginti*; whereby he extends the exclusion unto twenty daies, which in the textuary sense is fully accomplished in one.

But what hath most advanced it, is a mistake in another text of Aristotele, which seemeth directly to determine this disraption, *τίκται μὲν ἐκ τῆς ἐν ὕδατι, καὶ ἀπὸ τῆς ἐν τῇ μήτρῃ, ἐν τῇ δὲ μήτρῃ δὲ τῇ ἐν τῇ μήτρῃ ἀπὸ τῆς ἐν τῇ μήτρῃ*: which Gaza hath thus translated, *Parit catulos obvolutos membranis, que tertio die rumpuntur, evenit interdum ut qui in utero adhuc sunt abrosis membranis prorumpant*. Now herein very probably Pliny, and many since have been mistaken; for the disraption of the membranes or skins, which include the young ones, conceiving a dilaceration of the matrix and belly of the Viper; and concluding from a casuall dilaceration, a regular and constant disraption.

As for the Latine word *Vipera*, which in the Etymologie of Isidore promoteth this conceit; more properly it may imply *vivipera*. For whereas other Serpents lay egges, the Viper excludeth living animals; and though the Ceraftes be also viviparous, and we have found formed Snakes in the belly of the Cicilia or slow-worm; yet may the Viper emphatically bear the name. For the notation or Etymologie is not of necessity adequate unto the name; and therefore though animall be deduced from *anima*, yet are there many animations beside, and plants will challenge a right therein as well as sensible creatures.

As touching the Text of Scripture, and compellation of the Pharisees, by Generation of Vipers; although constructions be made hereof conformable to this Tradition, and it may be plausibly expounded, that out of a viperous condition, they conspired against their Prophets, and destroyed their spirituall parents; yet (as Jansenius observeth) Gregory and Jerome, doe make another construction; apprehending thereby what is usually implied by that Proverb, *Mali corvi malum ovum*; that is, of evil parents, an evil generation; a posterity not unlike their majority; of mischievous progenitors, a venomous and destructive progeny.

And lastly, concerning the Hieroglyphicall account, according to the Vulgar conception set down by Orus Apollo, the authority thereof is only Emblematicall; for were the conception true or false, to their apprehensions, it expressed filiall impiety. Which strictly taken, and totally received for truth; might perhaps begin; but surely promote this conception.

CHAP. XVII.

Of Hares.

Ar nabeth.

Levit. 11.

Transmutation of
Sexes, viz. of
Women into
Men granted.

THat Hares are both male and female, beside the vulgar opinion, was the affirmative of Archelaus, of Plutarch, Philostratus and many more. Of the same belief have been the Jewish Rabbins: The same is likewise confirmed from the Hebrew word; which as though there were no single males of that kinde, hath only obtained a name of the feminine gender; as also from the symbolical foundation of its prohibition in the law, and what vices therein it figured; that is, not only pusillanimity and timidity from its temper, feneration or usury from its fecundity and superfetation, but from this mixture of sexes, unnaturall venery and degenerous effemination. Nor are there hardly any who either treat of mutation or mixtion of sexes, who have not left some mention of this point; some speaking positively, others dubiously, and most resigning it unto the enquiry of the Reader. Now hereof to speak distinctly, they must be male and female by mutation and succession of sexes; or else by composition, mixture or union thereof.

As for the mutation of sexes, or transition into one another, we cannot deny it in Hares, it being observable in Man. For hereof beside Empedocles or Tiresias, there are not a few examples; and though very few, or rather none which have emasculated or turned Women, yet very many who from an esteem or reality of being Women have infallibly proved Men: some at the first point of their menstruous eruptions, some in the day of their marriage, others many years after; which occasioned disputes at Law, and contestations concerning a restore of the dowry. And that not only Mankind, but many other Animals, may suffer this transfixion, we will not deny, or hold it at all impossible; although I confesse by reason of the postick and backward position of the feminine parts in quadrupedes, they can hardly admit the substitution of a protrusion effectually unto masculine generation; except it be in Retromingents, and such as couple backward.

Nor shall we only concede the succession of sexes in some, but shall not dispute the transition of reputed species in others; that is, a transmutation, or (as Paracelsians terme it) Transplantation of one into another. Hereof in perfect Animals of a congenerous feed, or near affinity of natures, examples are not unfrequent, as Horses, Asses, Dogs, Foxes, Phaisants, Cocks, &c. but in imperfect kindes, and such where the discrimination of sexes is obscure, these transformations are more common: and in some within themselves without commixtion, as particularly in Caterpillers or Silk-wormes, wherein there is a visible and triple transfiguration. But in Plants wherein there is no distinction of sex, these transplantations are yet more obvious then any; as that of Barley into Oates, of Wheat into Darnell, and those grains which generally arise among corn, as Cockle, Aracus, Egilops, and other degenerations; which come up in unexpected shapes, when they want the support and maintenance of the primary and master-formes: And the same doe some affirm concerning other Plants in lesse analogy of figures; as the mutation of Mint into Cresies, Basill into Serpoile, and Turneps into Radishes; in all which, as Severinus conceiveth, there may be equivocall seeds and Hermaphroditicall principles, which contain the radicality and power of different forms; thus in the seed of Wheat there lieth obscurely the feminality of Darnell, although

in

Jo. Mifflo. 78.

In Idea Medica
sine Phisica.

in a secondary or inferiour way, and at some distance of production; which neverthelesse if it meet with convenient promotion, or a conflux and conspiration of causes more powerfull then the other; it then beginneth to edifie in chief, and contemning the superintendent form, produceth the signatures of its self.

Now therefore although we deny not these severall mutations, and doe allow that Hares may exchange their sex, yet this we conceive doth come to passe but sometimes, and not in that vicissitude or annuall alternation as is presumed; that is, from imperfection to perfection, from perfection to imperfection; from female unto male, from male to female again, and so in a circle to both without a permanfion in either. For beside the inconceivable mutation of temper, which should yearly alternate the sex, this is injurious unto the order of nature, whose operations doe rest in the perfection of their intents; which having once attained, they maintain their accomplished ends, and relapse not again into their progressionall imperfections. So if in the minority of naturall vigor, the parts of feminality take place; when upon the encrease or growth thereof the masculine appear, the first designe of nature is achieved, and those parts are after maintained.

But surely it much impeacheth this iterated transexion of Hares, if that be true which Cardan and other Physicians affirm, that Transmutation of sex is only so in opinion; and that these transfeminated persons were really men at first, although succeeding years produced the manifesto or evidence of their virilities. Which although intended and formed, was not at first excluded; and that the examples hereof have undergone no reall or new transexion, but were Androgynally born, and under some kinde of Hermaphrodites. For though Galen doe favour the opinion, that the distinctive parts of sexes are only different in position, that is, inversion or protrusion, yet will this hardly be made out from the Anatomy of those parts; the testicles being so seated in the female, that they admit not of protrusion; and the neck of the matrix wanting those parts which are discoverable in the organ of virility.

The second and most received acception, is, that Hares are male and female by conjunction of both sexes; and such are found in mankind, Poetically called Hermaphrodites; supposed to be formed from the equality, or *non victorie* of either seed; carrying about them the parts of Man and Woman; although with great variety in perfection, site and ability; not only as Aristotle conceived, with a constant impotencie in one; but as later Observers affirm, sometimes with ability of either venery. And therefore the providence of some Laws have thought good, that at the years of maturity they should elect one sex, and the errors in the other should suffer a severer punishment. Whereby endeavouring to prevent incontinencie, they unawares enjoined perpetuall chastity; for being executive in both parts, and confined unto one; they restrained a naturall power, and ordained a partiall virginity. Plato and some of the Rabbins proceeded higher; who conceived the first Man an Hermaphrodite; and Marcus Leo the learned Jew, in some sense hath allowed it; affirming that Adam in one suppositum without division, contained both male and female; and therefore whereas it is said in the text, That God created man in his own Image, in the Image of God created he him, male and female created he them: applying the singular and plurall unto Adam, it might denote, that in one substance, and in himself he included both sexes, which was after divided, and the female called Woman. The opinion of Aristotle extendeth farther, from whose assertion all men should be Hermaphrodites; for affirming that Women doe not sperma-

110
De. supra. 110. See his Reliq.
Med. pag. 44.

De. supra. 35

Consisting of
man and wo-
man.

Superfétation
possible in wo-
men, and that un-
to a perfect birth.

163. in fine.

tize, and conferre a place or receptacle rather then essentiall principles of generation, he deductively includes both sexes in mankind; for from the father proceed not only males and females, but from him also must Hermaphroditicall and masculo-feminine generations be derived, and a commixtion of both sexes arise from the seed of one. But the Schoolmen have dealt with that sex more hardly then any other, who though they have not much disputed their generation, yet have they controverted their Resurrection, and raised a query, whether any at the last day should arise in the sex of Women; as may be observed in the supplement of Aquinas.

Now as we must acknowledge this Androgynall condition in Man, so can we not deny the like doth happen in beasts. Thus doe we reade in Pliny, that Neroes Chariot was drawn by four Hermaphroditicall Mares, and Cardan affirmes he also beheld one at Antwerp; and thus may we also concede, that Hares have been of both sexes, and some have ocularly confirmed it; but that the whole species or kinde should be bisexual or double-sexed, we cannot affirm, who have found the parts of male and female respectively distinct and single in any wherein we have enquired. And whereas it is conceived, that being an harmlesse animall and delectable food unto man, nature hath made them with double sexes, that actively and passively performing they might more numerously encrease; we forget an higher providence of nature whereby she especially promotes the multiplication of Hares, which is by superfétation; that is, a conception upon a conception, or an improvement of a second fruit before the first be excluded; preventing hereby the usuall intermission and vacant time of generation; which is very common and frequently observable in Hares, mentioned long ago by Aristotle, Herodotus and Pliny; and we have often observed, that after the first cast, there remain successive conceptions, and other younglings very immature, and far from their terme of exclusion.

Nor need any man to question this in Hares, for the same we observe doth sometime happen in Women; for although it be true, that upon conception the inward orifice of the matrix exactly closeth, so that it commonly admitteth nothing after; yet falleth it out sometime, that in the act of coition, the avidity of that part dilateth it self, and receiveth a second burden; which if it happen to be near in time unto the first, they commonly doe both proceed unto perfection, and have legitimate exclusions, periodically succeeding each other. But if the superfétation be made with considerable intermission, the latter most commonly proves abortive; for the first being confirmed, engrosseth the aliment from the other. However therefore the project of Julia seem very plausible, and that way infallible, when she received not her passengers, before she had taken in her lading; there was a fallibility therein; nor indeed any absolute security in the policy of adultery after conception. For the Matrix (which some have called another animall within us, and which is not subjected unto the law of our will) after reception of its proper Tenant, may yet receive a strange and spurious inmate; as confirmable by many examples in Pliny; by Larissæa in Hippocrates; and that merry one in Plautus urged also by Aristotle; that is, of Iphicles and Hercules, the one begat by Jupiter, the other by Amphitryon upon Alcmena; as also in those superconceptions where one childe was like the father, the other like the adulterer; the one favour'd the servant, the other resembled the master.

Now the grounds that begat, or much promoted the opinion of a double sex in Hares, might be some little bags or tumours, at first glance representing stones or Testicles, to be found in both sexes about the parts of generation; which

which men observing in either sex, were induced to beleieve a masculine sex in both; but to speak properly, these are no Testicles or parts officiall unto generation, but glandulous substances that seem to hold the nature of Emunctories. For herein may be perceived slender perforations, at which may be expressed a black and fœculent matter; if therefore from these we shall conceive a mixtion of sexes in Hares, with fairer reason we may conclude it in Bevers, whereof both sexes contain a double bagge or Tumour in the groin, commonly called the Cod of Castor, as we have delivered before.

Another ground were certain holes or cavities observable about the sledge; which being perceived in males, made some conceive there might be also a fœminine nature in them. And upon this very ground, the same opinion hath passed upon the Hyæna, as is declared by Aristotle; and thus translated by Scaliger; *Quod autem aiunt utriusq; sexus habere genitalia, falsum est, quod videtur esse fœminum sub cauda, est simile figura fœminino, verum pervium non est*; and thus is it also in Hares; in whom these holes, although they seem to make a deep cavity, yet doe they not perforate the skin; nor hold a community with any part of generation; but were (as Pliny delivereth) esteemed the marks of their age, the number of those deciding their number of years. In which opinion what truth there is we shall not contend; for if in other Animals there be authentick notations; if the characters of years be found in the horns of Cowes, or in the Antlers of Deere; if we conjecture the age of Horses from joints in their docks, and undeniably presume it from their teeth; we cannot affirm, there is in this conceit, any affront unto nature; although, who ever enquireth shall finde no assurance therein.

The last foundation was Retromingency or pissing backward; for men observing both sexes to urine backward, or averſly between their legges, they might conceive there was a fœminine part in both; wherein they are deceived by the ignorance of the just and proper site of the Pizell, or part designed unto the Excretion of urine; which in the Hare holds not the common position, but is averſly seated, and in its distention enclines unto the coccix or scut. Now from the nature of this position, there ensueth a necessity of Retrocopulation, which also promoteth the conceit; for some observing them to couple without ascension, have not been able to judge of male or female, or to determine the proper sex in either. And to speak generally this way of copulation is not appropriate unto Hares, nor is there one, but many waies of Coition; according to divers shapes and different conformations. For some couple laterally or sidewise; as wormes; some circularly or by complication as Serpents; some pronely, that is by contraction of prone parts in both, as Apes, Porcupines, Hedgehogges, and such as are termed Mollia, as the Cuttlefish and the Purple; some mixtly, that is, the male ascending the female, or by application of the prone parts of the one, unto the postick parts of the other, as most Quadrupeds; Some averſely, as all Crustaceous animals, Lobsters, Shrimps, and Crevises, and also Retromingents, as Panthers, Tigers, and Hares. This is the constant Law of their Coition, this they observe and transgresse not: only the vitiosity of man hath acted the varieties hereof; nor content with a digression from sex or species, hath in his own kinde run thorow the Anomalies of venery; and been so bold, not only to act, but represent to view, the Irregular waies of lust.

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See for this Aristotle's postures

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CHAP. XVIII.

of Molls.

#Cacitas.

That Molls are blinde and have no eyes, though a common opinion, is received with much variety; some affirming only they have no sight, as Oppianus, the Proverb *Talpa Cacior*, and the word *αυδαχία*, or *Talpitias*, which in Hesychius is made the same with *Cacias*: some that they have eies, but no sight, as the text of Aristotle seems to imply; some neither eies nor sight, as Albertus, Pliny, and the vulgar opinion; some both eies and sight, as Scaliger, Aldrovandus, and some others. Of which opinions the last with some restriction, is most consonant unto truth: for that they have eyes in their head is manifest unto any, that wants them not in his own; and are discoverable, not only in old ones, but as we have observed in young and naked conceptions, taken out of the belly of the Dam. And he that exactly enquires into the cavity of their cranies, may discover some propagation of nerves communicated unto these parts; but that the humors together with their coats are also distinct (though Galen seem to affirm it) transcendeth our discovery; for separating these little Orbes, and including them in magnifying glasses, we discerned no more then Aristotle mentions, *ἢ ὁραλὸν μὲν αὖτα*, that is, *humorem nigrum*, nor any more if they be broken. That therefore they have eies we must of necessity affirm, but that they be comparatively incomplete we need not to denie: So Galen affirms the parts of generation in women are imperfect, in respect of those of men, as the eies of Molls in regard of other animals; So Aristotle termes them *ἡμιτελείας*, which Gaza translates *oblasos*, and Scaliger by a word of Imperfection, *inchoatos*.

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Now as that they have eies is manifest unto sense, so that they have sight not incongruous unto reason; if we call not in question the providence of this provision, that is, to assign the organs, and yet deny the office, to grant them eies and withhold all manner of vision. For as the inference is fair, affirmatively deduced from the action to the organ, that they have eies because they see; so is it also from the organ to the action, that they have eies, therefore some sight designed; if we take the intention of Nature in every species, and except the casual impediments, or morbosities in individuals. But as their eies are more imperfect then others, so doe we conceive of their sight, or act of vision; for they will runne against things, and huddling forwards fall from high places. So that they are not blinde, nor yet distinctly see; there is in them no cecity, yet more then a cecutiency; they have sight enough to discern the light, though not perhaps to distinguish of objects or colours; so are they not exactly blinde, for light is one object of vision. And this (as Scaliger observeth) might be as full a sight as Nature first intended; for living in darknesse under the earth, they had no further need of eies then to avoid the light; and to be sensible when ever they lost that darknesse of earth, which was their naturall confinement. And therefore however Translators doe render the word of Aristotle or Galen, that is, *imperfectos*, *oblasos* or *inchoatos*, it is not much considerable; for their eies are sufficiently begun to finish this action, and competently perfect for this imperfect Vision.

And lastly, although they had neither eies nor sight, yet could they not be termed blinde. For blindness being a privative term unto sight, this appellation

pellation is not admittible in propriety of speech, and will overthrow the doctrine of privations; which presuppose positive formes or habits, and are not indefinite negations, denying in all subjects, but such alone wherein the positive habits are in their proper nature, and placed without repugnancy. So doe we improperly say a Moll is blinde, if we deny it the organs or a capacity of vision from its created nature; so when the text of John had said, that person was blinde from his nativity, whose cecity our Saviour cured, it was not warrantable in Nonnus to say he had no eies at all, ^{as} in the judgement of Heinſius, as he describeth in his paraphrase; and as some ancient Fathers affirm, that by this miracle they were created in him. And so though the sense may be accepted, that proverb must be candidly interpreted, which maketh fishes mute; and calls them silent which have no voice in Nature.

Now this conceit is erected upon a misapprehension or mistake in the symptoms of vision; men confounding abolishment, diminution and depravement, and naming that an abolition of sight, which indeed is but an abatement. For if vision be abolished, it is called *cacitas*, or blindnesse; if depraved and receive its objects erroneously, Hallucination; if diminished, *hebetudo visus*, *caligatio*, or dimnesse. Now instead of a diminution or imperfect vision in the Moll, we affirm an abolition or totall privation; in stead of caligation or dimnesse, we conclude a cecity or blindnesse. Which hath been frequently inferred concerning other animals; so some affirm the water Rat is blinde, so Sammonicus and Nicander doe call the Mus-Araneus the shrew or Ranny, blinde; And because darknesse was before light, the Egyptians worshipped the same: So are slow-Wormes accounted blinde, and the like we affirm proverbially of the Beetle; although their eies be evident, and they will flye against lights, like many other insects; and though also Aristotle determines, that the eies are apparent in all flying insects, though other senses be obscure, and not perceptible at all. And if from a diminution we may inferre a totall privation, or affirm that other Animals are blinde which doe not acutely see, or comparatively unto others, we shall condemn unto blindnesse many not so esteemed; for such as have corneous or horney eies, as Lobsters and crustaceous animals, are generally dim-sighted; all insects that have *antennae*, or long hornes to feel out their way, as Butter-flies and Locusts; or their fore-legs so disposed, that they much advance before their heads, as may be observed in Spiders; and if the Eagle were judge, we might be blinde our selves; the expression therefore of Scripture in the story of Jacob is surely with circumspection; And it came to passe when Jacob was old, and his eies were dim, *quando caligarunt oculi*, saith Jerom and Tremellius, which are expressions of diminution, and not of absolute privation.

CHAP. XIX.

Of Lampries.

WHether Lampries have nine eies, as is received, we durst refer it unto Polyphemus, who had but one, to judge it. An error concerning eies, occasioned by the error of eies; deduced from the appearance of divers cavities or holes on either side, which some call eies that carelessly behold them; and is not only refutable by experience, but also repugnant

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unto reason. For beside the monstrosity they fasten unto Nature, in contriving many eies, who hath made but two unto any animall, that is, one of each side, according to the division of the brain; it were a superfluous and artificiall act to place and settle so many in one plane; for the two extreame would sufficiently perform the office of sight without the help of the intermediate eies, and behold as much as all seven joined together. For the visible base of the object would be defined by these two; and the middle eies although they behold the same thing, yet could they not behold so much thereof as these; so were it no advantage unto man to have a third eie between those two he hath already; and the fiction of Argus seems more reasonable then this; for though he had many eies, yet were they placed in circumference and positions of advantage.

All sense is from
the brain.

Again, These cavities which men call eies are seated out of the head, and where the Gills of other fish are placed; containing no organs of sight, nor having any communication with the brain. Now all sense proceeding from the brain, and that being placed (as Galen observeth) in the upper part of the body, for the fitter situation of the eies, and conveniency required unto sight; it is not reasonable to imagine that they are any where else, or deserve that name which are seated in other parts. And therefore we relinquish as fabulous what is delivered of Sternophthalmi, or men with eies in their breast; and when it is said by Solomon, A wise mans eies are in his head, it is to be taken in a second sense, and affordeth no objection. True it is that the eies of animals are seated with some difference, but all whatsoever in the head, and that more forward then the ear or hole of hearing. In quadripedes, in regard of the figure of their heads, they are placed at some distance; in latirostous and flat-bild birds they are more laterally seated; and therefore when they look intently they turn one eie upon the object, and can convert their heads to see before and behinde, and to behold two opposite points at once. But at a more easie distance are they situated in man, and in the same circumference with the ear; for if one foot of the compasse be placed upon the Crown, a circle described thereby will intersect, or passe over both the eares.

To what use the
nine eies in a
Lamprey do serve.

The error in this conceit consists in the ignorance of these cavities, and their proper use in nature; for this is a particular disposure of parts, and a peculiar conformation whereby these holes and sluces supply the defect of Gills, and are assisted by the conduit in the head; for like cetaceous animals and Whales, the Lamprey hath a fistula, spout or pipe at the back part of the head, whereat it spurts out water. Nor is it only singular in this formation, but also in many other; as in defect of bones, whereof it hath not one; and for the spine or back-bone, a cartilaginous substance without any spondyles, processes or protuberance whatsoever. As also in the provision which Nature hath made for the heart; which in this animall is very strangely secured, and lies immured in a cartilage or gristly substance. And lastly, in the colour of the liver; which is in the male of an excellent grasse green; but of a deeper colour in the female, and will communicate a fresh and durable verdure.

CHAP. XX.

of Snayles.

That Snayles have two eyes, and at the end of their Horns, beside the as-
sertion of the people, is the opinion of some Learned men. Which not-
withstanding Scaliger tearms but imitation of eyes; which Pliny contradicts,
and Aristotle upon consequence denies, when he affirms that testaceous
animals have no eyes at all. And for my own part after much inquiry, I am
not satisfied that these are eyes, or that those black and atramentous spots
which seem to represent them are any ocular realities. For if any object be
presented unto them, they will sometime seem to decline it, and sometime
run against it. If also these black extremities, or presumed eyes be clipped
off, they will notwithstanding make use of their protrusions or horns, and
poke out their way as before. Again, if they were eyes or instruments of vi-
sion, they would have their originals in the head, and from thence derive
their motive and optick organs; but their roots and first extremities are seated
low upon the sides of the back, as may be perceived in the whiter sort of
Snayles when they retract them. And lastly, if we concede they have two
eyes, we must also grant, they have no lesse then four; for not only the two
greater extensions above have these imitations of eyes, but also the two
lesser below: and if they be dextrously dissected, there will be found on ei-
ther side two black filaments or membranous strings, which extend into the
long and shorter cornicle upon protrusion. And therefore if they have two
eyes, they have also four, which will be monstrous, and beyond the affirma-
tion of any.

Now the reason why we name these black strings eyes, is, because we know
not what to call them else, and understand not the proper use of that part;
which indeed is very obscure, and not delivered by any; but may probably
be said to assist the protrusion and retraction of their horns; which being a
weak and hollow body, require some inward establishment, to confirm the
length of their advancement; which we observe they cannot extend without
the concurrence hereof. For if with your finger you apprehend the top of
the horn, and draw out this black and membranous emission, the horn will
be excluded no more; but if you clip off the extremity, or only singe the
top thereof with *Aqua fortis*, or other corrasive water, leaving a considerable
part behinde; they will neverthelesse exclude their horns, and therewith
explore their way as before. And indeed the exact sense of these extremi-
ties is very remarkable; for if you dip a pen in *Aqua fortis*, oyl of vitriol or
Turpentine, and present it towards these points; they will at a reasonable di-
stance, decline the acrimony thereof, retiring or distorting them to avoid it;
and this they will nimbly perform if objected to the extremes, but slowly or
not at all, if approached unto their roots.

What hath been therefore delivered concerning the plurality, paucity or
anomalous situation of eyes, is either monstrous, fabulous, or under things
never seen includes good sense or meaning. And so may we receive the fig-
ment of Argus, who was an Hieroglyphick of heaven, in those centuries of
eyes expressing the stars; and their alternate wakings, the vicissitude of day
and night; which strictly taken, cannot be admitted; for the subject of sleep
is not the eye, but the common sense, which once asleep, all eyes must be at
rest. And therefore what is delivered as an Embleme of vigilancy, that the

Hare

Vind. Spana
126. f

pag. 14.

Hare and Lion doe sleep with one eye open, doth not evince they are any more awake then if they were both closed. For the open eye beholds in sleep no more then that which is closed; and no more one eye in them then two in other animals that sleep with both open; as some by disease, and others naturally which have no eye-lids at all.

How things happen to be seen as double,

As for Polyphemus, although the story be fabulous, the monstrosity is not impossible. For the act of Vision may be performed with one eye; and in the deception and fallacy of sight, hath this advantage of two, that it beholds not objects double, or sees two things for one. For this doth happen when the axis of the visive cones, diffused from the object, fall not upon the same plane; but that which is conveyed into one eye, is more depressed or elevated then that which enters the other. So if beholding a Candle, we protrude either upward or downward the pupill of one eye, the object will appear double; but if we shut the other eye, and behold it with one, it will then appear but single; and if we abduce the eye unto either corner, the object will not duplicate; for in that position the axis of the cones remain in the same plane, as is demonstrated in the opticks, and delivered by Galen, in his tenth *De usu partium*.

Relations also there are of men that could make themselves invisible, which belongs not to this discourse; but may serve as notable expressions of wise and prudent men, who so contrive their affairs, that although their actions be manifest, their designs are not discoverable. In this acception there is nothing left of doubt, and Giges ring remaineth still amongst us; for vulgar eyes behold no more of wise men then doth the Sun; they may discover their exterior and outward waies, but their interior and inward pieces he only sees, that sees into their beings.

p. 17.

CHAP. XXI.

Of the Cameleon.

Concerning the Cameleon there generally passeth an opinion that it liveth only upon ayre, and is sustained by no other aliment; Thus much is in plain termes affirmed by Solinus, Pliny and others, and by this periphrasis is the same described by Ovid. All which notwithstanding upon enquiry I finde the assertion mainly controvertible, and very much to fail in the three inducements of belief.

And first for its verity, although asserted by some, and traditionally delivered by others, yet is it very questionable. For beside *Asian*, who is seldom defective in these accounts; Aristotle distinctly treating hereof, hath made no mention of this remarkable propriety; which either suspecting its verity, or presuming its falsity he surely omitted; for that he remained ignorant of this account it is not easily conceivable; it being the common opinion, and generally received by all men. Some have positively denied it, as *Augustinus Niphus*, *Stobaeus*, *Dalechampsius*, *Fortunius*, *Licetus*, with many more; others have experimentally refuted it, as namely *Johannes Landinus*, who in the relation of *Scaliger*, observed a Cameleon to lick up a fly from his breast; But *Bellonius* hath been more satisfactorily experimentall, not only affirming they feed on Flies, Caterpillars, Beetles and other insects; but upon exenteration he found these animals in their bellies; and although we have not had the advantage of our own observation, yet have we received the

18. 94.
The assertion about the Cameleon on a false Authority.

Omitted by *Helian* & *Plato* distinctly treat of it as animal

positively denied by others experimentally refuted.

the like confirmation from many ocular spectators.

As touching the verisimilitie or probable truth of this relation, severall reasons there are which seem to overthrow it. For first, there are found in this animall, the guts, the stomach, and other parts officiall unto nutrition; which were its aliment the empty reception of air, their provisions had been superfluous. Now the wisdom of nature abhorring superfluities, and effecting nothing in vain, unto the intention of these operations, respectively contriveth the Organs; and therefore where we finde such Instruments; we may with strictnesse expect their actions, and where we discover them not; we may with safety conclude the non-intention of their operations. So when we observe that oviperous animals, as Lizards, Frogs, Birds, and most Fishes have neither bladder nor kidneys, we may with reason inferre they do not urine at all: But whereas in the same kinde we discover these parts in the Tortoys, we cannot deny he exerciseth that excretion; Nor was there any absurdity in Pliny, when for medicinall uses he commended the urine of a Tortoise. So when we perceive that Bats have teats, it is not unreasonable to inferre they suckle their younglings with milk; but whereas no other flying animall hath these parts, we cannot from them expect a viviparous exclusion; but either a generation of eggs, or some vermiparous separation, whose navell is within it self at first, and its nutrition after not inwardly dependant of its originall.

Again, Nature is so far from leaving any one part without its proper action, that she oft times imposeth two or three labours upon one, so the pizell in animals is both officiall unto urine and to generation, but the first and primary use is generation; for many creatures enjoy that part which urine not, as fishes, birds, and quadrupeds oviparous. But not on the contrary, for the secundary action subsisteth not alone, but in concomitancy with the other; so the nostrils are usefull both for respiration and smelling, but the principall use is smelling; for many have nostrils which have no lungs, as fishes, but none have lungs or respiration, which have not some shew, or some analogy of nostrils. Thus we perceive the providence of nature, that is, the wisdom of God, which disposeth of no part in vain, and some parts unto two or three uses, will not provide any without the execution of its proper office, nor where there is no digestion to be made, make any parts inservient to that intention.

Beside the teeth, the tongue of this animall is a second argument to overthrow this aerie nutrication: and that not only in its proper nature, but also its peculiar figure. For of this part properly taken there are two ends; that is, the formation of the voice, and the execution of taste: for the voice, it can have no office in Camelions, for they are mute animals; as beside fishes, are most other sorts of Lizards. As for their taste, if their nutriment be air, neither can it be an instrument thereof; for the body of that element is ingustible, void of all sapidity, and without any action of the tongue, is by the rough artery or wezon conducted into the lungs. And therefore Pliny much forgets the strictnesse of his assertion, when he alloweth excrements unto that animall, that feedeth only upon air; which notwithstanding with the urine of an Asse, he commends as a magicall medicine upon our enemies.

The figure of the tongue seems also to overthrow the presumption of this aliment, which according to exact delineation, is in this animall peculiar, and seemeth contrived for prey. For in so little a creature it is at the least half a palm long, and being it self very slow in motion, hath in this part a very great agility; withall its food being flies and such as suddenly escape, it hath

*This relation against Reason
1 Parts officiall unto Nutrition
found in Camelion*

124.

*The primary use of pizell
for generation, & then for
urine, & excretion*

Nature provides
no part, without
its proper function
or office.

*2 Joseph, tongue of pizell
made 2 arguments
The tongue made for 2 Ends
Voice, & Taste.*

*Pliny caught contradicting
himself. 93.*

Figure of pizell an argument

in the tongue a mucous and slimy extremity, whereby upon a sudden emission it inviscates and tangleth those insects. And therefore some have thought its name not unsuitable unto its nature; the nomination in Greek is a little Lion; not so much for the resemblance of shape, as affinity of condition; that is for vigilancy in its prey, and sudden rapacity thereof, which it performeth not like the Lion with its teeth, but a sudden and unexpected ejaculation of the tongue. This exposition is favoured by some, especially the old glosse upon Leviticus, whereby in the Translation of Jerome and the Septuagint, this animall is forbidden; whatever it be, it seems more reasonable then that of Isidore, who derives this name a *Camelo & Leone*, as presuming herein resemblance with a Camell.

As for the possibility hereof, it is not also unquestionable; and wise men are of opinion, the bodies of animals cannot receive a proper aliment from air: for beside that taste being (as Aristotle terms it) a kinde of touch; it is required the aliment should be tangible, and fall under the palpable affections of touch; beside also that there is some sapor in all aliments, as being to be distinguished and judged by the gust, which cannot be admitted in air: Beside these, I say, if we consider the nature of aliment, and the proper use of air in respiration, it will very hardly fall under the name hereof, or properly attain the act of nutrication.

And first concerning its nature, to make a perfect nutrition into the body nourished, there is required a transmutation of the nutriment, now where this conversion or aggeneration is made, there is also required in the aliment a familiarity of matter, and such a community or vicinity unto a living nature, as by one act of the soul may be converted into the body of the living, and enjoy one common soul. Which cannot be effected by air, it concurring only with our flesh in common principles, which are at the largest distance from life, and common also unto inanimated constitutions. And therefore when it is said by Fernelius, and asserted by divers others, that we are only nourished by living bodies, and such as are some way proceeding from them, that is, the fruits, effects, parts, or seeds thereof, they have laid out an object very agreeable unto assimilation; for these indeed are fit to receive a quick and immediate conversion, as holding some community with our selves, and containing approximate dispositions unto animation.

Secondly (as is argued by Aristotle against the Pythagoreans) whatsoever properly nourisheth before its assimilation, by the action of naturall heat it receiveth a corpulency or incrassation progressionall unto its conversion; which notwithstanding cannot be effected upon the air; for the action of heat doth not condense but rarifie that body, and by attenuation rather then for nutrition, disposeth it for expulsion.

Thirdly (which is the argument of Hippocrates) all aliment received into the body, must be therein a considerable space retained, and not immediatly expelled. Now air but momentarily remaining in our bodies, it hath no proportionable space for its conversion; only of length enough to refrigerate the heart; which having once performed, lest being it self heated again, it should suffocate that part, it maketh no stay, but hasterh back the same way it passed in.

Fourthly, The proper use of ayre attracted by the lungs, and without which there is no durable continuation in life, is not the nutrition of parts, but the contemperation of that fervour in the heart, and the ventilation of that fire alwaies maintained in the forge of life; whereby although in some manner it concurrerh unto nutrition, yet can it not receive the proper name of nutriment; and therefore by Hippocrates *de alimento*, it is termed *Alimentum*

mentum

καμειλέων.

Etymol. some give of chameleon

Aliment tangible

Sapor in aliment.

Requisites unto Nutrition.

1 requisite unto nutrition a familiarity of matter to the body fed.

2 That by naturall heat it receiveth a corpulency

3 That it be retained in the body a considerable space.

The proper use of Ayre attracted by the lungs.

mentum non Alimentum, a nourishment and no nourishment. That is, in a large acception, but not in propriety of language; conserving the body, not nourishing the same; not repairing it by assimilation, but preserving it by ventilation; for thereby the naturall flame is preserved from extinction, and so the individuum supported in some way like nutrition. And so when it is said by the same Author, *Pulmo contrarium corpori alimentum trahit, reliqua omnia idem*, it is not to be taken in a strict and proper sense; but the quality in the one, the substance is meant in the other. For air in regard of our naturall heat is cold, and in that quality contrary unto it; but what is properly aliment, of what quality soever, is potentially the same, and in a substantiall identity unto it.

Again, Some are so farre from affirming the air to afford any nutriment, that they plainly deny it to be any element, or that it entreteth into mixt bodies as any principle in their compositions, but performeth other offices in the universe, as to fill all vacuities about the earth or beneath it, to convey the heat of the sun, to maintain fires and flames, to serve for the flight of volatils, respiration of breathing animals, and refrigeration of others. And although we receive it as an element, yet since the transmutation of elements and simple bodies, is not beyond great question, since also it is no easie matter to demonstrate that air is so much as convertible into water; how transmutable it is into flesh, may be of deeper doubt.

And although the air attracted may be conceived to nourish the invisible flame of life, in as much as common and culinary flames are nourished by the air about them; I confesse we doubt that air is the pabulous supply of fire, much lesse that flame is properly air kindled. And the same before us, hath been denied by the Lord of Verulam, in his Tract of life and death, and also by Dr Jorden in his book of Minerall waters. For that which substantially maintaineth the fire, is the combustibile matter in the kindled body, and not the ambient air, which affordeth exhalation to its fuliginous atomes; nor that which causeth the flame properly to be termed air, but rather as he expresseth it, the accension of fuliginous exhalations, which contain an unctuousity in them, and arise from the matter of fuell; which opinion is very probable, and will salve many doubts, whereof the common conceit affordeth no solution.

As first, How fire is stricken out of flints? that is not by kindling the air from the collision of two hard bodies; for then Diamonds should doe the like better then flints; but rather from the sulphur and inflamable effluviūms contained in them. The like saith Jorden we observe in canes and woods, that are unctuous and full of oyle, which will yeeld fire by friction, or collision, not by kindling the air about them, but the inflamable oyle within them. Why the fire goes out without air? that is, because the fuliginous exhalations wanting evaporation recoyle upon the flame and choak it, as is evident in cupping-glasses; and the artifice of charcoals, where if the air be altogether excluded, the fire goes out. Why some lamps included in close bodies have burned many hundred years, as that discovered in the sepulchre of Tullia the sister of Cicero, and that of Olibius many years after, near Padua? because whatever was their matter, either a preparation gold, or Naptha, the duration proceeded from the purity of their oyle which yeelded no fuliginous exhalations to suffocate the fire; For if air had nourished the flame, it had not continued many minutes, for it would have been spent and wasted by the fire. Why a piece of flax will kindle, although it touch not the flame? because the fire extendeth further, then indeed it is visible, being at some distance from the weake, pellucide and transparent body, and thinner

Fire though absolutely hot, yet not comparably to natural heat.

Fire denied by some to be an element or principle of mixt bodies, who offic of it performe in y^e world, according to the naturall transmutation of the elements hardly demonstrable.

Doubts (by Dr Jorden) whether ayre be a pabulous supply of fire.

What the matter of Culinary or Kitchen fire is.

Dr Jorden's opinion of y^e nourishment of fire, probable, & salving doubts.

How fire is stricken out of flints?

Why fire goes out commonly wanting air.

And why sometimes continued many ages in flame without fuell.

R. Digby in his Treatise of Bodies, cap. 8. p. 64. & p. 65. says Canpe fabulosa.

Why Flax kindles, touching not the flame?

why Metals in liquation arise
not into a Flame?

why a Candle in a room not
eye at a distance for it?

An experiment

water whether nutritive
questioned by some?

the office of element of
water according to some.

Water not nutritive,
opinion of some.

Signs of goodness of
water according to some.

Clearst waters not to be
some say.

A seed of plants
and animals con-
tained in rain-wa-
ter.

Liboutin tom. 4
Chym.

This of the Chameleon to wit
opinion held by some.

Astomi 91.
Spanish Mares

Ariosto

Hispan nutritive,
quid componitur.

then the air it self. Why mettals in their liquation, although they intently heat the air above their surface, arise not yet into a flame, nor kindle the air about them? because their sulphur is more fixed, and they emit not inflamable exhalations. And lastly, why a lamp or candle burneth only in the air about it, and inflameth not the air at a distance from it? because the flame extendeth not beyond the inflamable effluence, but closely adheres unto the originall of its inflammation; and therefore it only warmeth, not kindleth the air about it. Which notwithstanding it will doe, if the ambient air be impregnate with subtile inflamabilities, and such as are of quick accension; as experiment is made in a close room, upon an evaporation of spirits of wine and Camphire; as subterraneous fires doe sometimes happen; and as Creusa and Alexanders boy in the bath were set on fire by Naptha.

Lastly, The Element of air is so far from nourishing the body, that some have questioned the power of water; many conceiving it enters not the body in the power of aliment, or that from thence there proceeds a substantiall supply. For beside that some creatures drink not at all, unto others it performs the common office of air, and serves for refrigeration of the heart, as unto fishes, who receive it, and expell it by the gills; even unto our selves, and more perfect animals, though many waies assistant thereto, it performs no substantiall nutrition, serving for refrigeration, dilution of solid aliment, and its elixation in the stomach; which from thence as a vehicle it conveys through lesse accessible cavities into the liver, from thence into the veines, and so in a rorid substance through the capillary cavities into every part; which having performed, it is afterward excluded by urine, sweat and serous separations. And this opinion surely possessed the Ancients; for when they so highly commended that water which is suddenly hot and cold, which is without all savour, the lightest, the thinnest, and which will sooneest boile Beans or Pease, they had no consideration of nutrition; whereunto had they had respect; they would have surely commended grosse and turbid streames, in whose confusion at least, there might be contained some nutriment; and not jejune or limpid water, nearer the simplicity of its Element. Although, I confess, our clearest waters and such as seem simple unto sense, are much compounded unto reason, as may be observed in the evaporation of large quantities of water; wherein beside a terreous residence some salt is also found, as is also observable in rain water; which appearing pure and empty, is full of feminall principles, and carrieth vitall atomes of plants and animals in it, which have not perished in the great circulation of nature, as may be discovered from severall insects generated in raine water, from the prevalent fructification of plants thereby; and (beside the reall plant of Cornerius) from vegetable figurations, upon the sides of glasses, so rarely delineated in frosts.

All which considered, severer heads will be apt enough to conceive the opinion of this animall, not much unlike unto that of the Astomi, or men without mouthes in Pliny; sutable unto the relation of the Mares in Spain, and their subventaneous conceptions, from the Western winde; and in some way more unreasonable then the figment of Rabican the famous horse in Ariosto, which being conceived by flame and winde, never tasted grasse, or fed on any grosser provinder then air; for this way of nutrition was answerable unto the principles of his generation; which being not airy, but grosse and feminall in the Chameleon, unto its conservation there is required a solid pasture, and a food congenerous unto the principles of its nature.

The

The grounds of this opinion are many; the first observed by Theophrastus, was the inflation or swelling of the body, made in this animall upon inspiration or drawing in its breath; which people observing, have thought it to feed upon air. But this effect is rather occasioned upon the greatnesse of its lungs, which in this animall are very large, and by their backward situation, afford a more observable dilatation; and though their lungs be lesse, the like inflation is also observable in Toads.

A second is the continuall hiation or holding open its mouth, which men observing conceive the intention thereof to receive the aliment of air; but this is also occasioned by the greatnesse of its lungs; for repletion whereof not having a sufficient or ready supply by its nostrils, it is enforced to dilate and hold open the jawes.

The third is the paucity of blood observed in this animall, scarce at all to be found but in the eye, and about the heart; which defect being observed, inclined some into thoughts, that the air was a sufficient maintenance for these exanguious parts. But this defect or rather paucity of blood, is also agreeable unto many other animals, whose solid nutriment we doe not controvert; as may be observed in other sorts of Lizards, in Frogs and divers Fishes; and therefore an Horse-leech will hardly be made to fasten upon a fish; and we doe not reade of much blood that was drawn from Frogs by Mice, in that famous battell of Homer.

The last and most common ground which begat or promoted this opinion, is the long continuation hereof without any visible food, which some observing precipitously conclude they eat not any at all. It cannot be denied it is (if not the most of any) a very abstemious animall, and such as by reason of its frigidiry, paucity of blood, and latitancy in the winter (about which time the observations are often made) will long subsist without a visible sustentation. But a like condition may be also observed in many other animals; for Lizards and Leeches, as we have made triall, will live some moneths without sustenance, and we have included Snailles in glasses all winter, which have returned to feed again in the spring. Now these notwithstanding, are not conceived to passe all their lives without food; for so to argue is fallacious, and is moreover sufficiently convicted by experience. And therefore probably other relations are of the same verity, which are of the like affinity; as is the conceit of the Rhintace in Persia, the Canis Levis of America, and the Manucodiata or bird of Paradise in India.

To assign a reason of this abstinence in animals, or declare how without a supply there ensueth no destructive exhaustion, exceedeth the limits and intention of my discourse. Fortunius Licetus in his excellent Tract, *De his qui diu vivunt sine alimento*, hath very ingeniously attempted it; deducing the cause hereof from an equall conformity of naturall heat and moisture, at least no considerable exuperancy in either; which concurring in an unactive proportion, the naturall heat consumeth not the moisture (whereby ensueth no exhaustion) and the condition of naturall moisture is able to resist the slender action of heat (whereby it needeth no reparation) and this is evident in Snakes, Lizards, Snailles, and divers other insects latitant many moneths in the year; which being cold creatures, containing a weak heat in a crasse or copious humidity, doe long subsist without nutrition: For the activity of the agent, being not able to overmaster the resistance of the patient, there will ensue no deperdition. And upon the like grounds it is, that cold and phlegmatick bodies, and (as Hippocrates determineth) that old men will best endure fasting. Now the same harmony and stationary constitution, as it happeneth in many species, so doth it fall out sometime in

The first ground for which
the opinion of a chameleon
might take its rise. Inflation
of its body, when it breathes.

Confutation

2^d continuall hiation

Confutation

3^d Paucity of blood

Conf.

The last promoter of opinion
is long continuation without any
visible food

Conf.

Individuals. For we reade of many who have lived long time without aliment; and beside deceits and impostures, there may be veritable Relations of some, who without a miracle, and by peculiarity of temper, have far outlasted Elias. Which notwithstanding doth not take off the miracle, for that may be miraculously effected in one, which is naturally causable in another. Some naturally living unto an hundred, unto which age, others notwithstanding could not attain without a miracle.

CHAP. XXII.

Of the Oestridge.

THE common opinion of the Oestridge, Struthiocamelus or Sparrow-Camell conceives that it digesteth Iron; and this is confirmed by the affirmations of many; beside swarms of others, Rhodiginus in his prelections taketh it for granted, Johannes Langius in his Epistles pleadeth experiment for it; the common picture also confirmeth it, which usually describeth this animall with an horseshoe in its mouth. Notwithstanding upon enquiry we finde it very questionable, and the negative seems most reasonably entertained; whose verity indeed we doe the rather desire, because hereby we shall relieve our ignorance of one occult quality; for in the list thereof it is accounted, and in that notion imperiously obtruded upon us. For my own part, although I have had the sight of this animall, I have not had the opportunity of its experiment, but have received great occasions of doubt, from learned discourses thereon.

For Aristotle and Oppianus who have particularly treated hereof are silent in this singularity; either omitting it as dubious, or as the Comment saith, rejecting it as fabulous. Pliny speaketh generally, affirming only, the digestion is wonderfull in this animall; *Aliau* delivereth, that it digesteth stones, without any mention of Iron; *Leo Africanus*, who lived in those Countries wherein they most abound, speaketh diminutively, and but half way into this assertion; *Surdum ac simplex animal est, quicquid invenit, absque delectu, usque ad ferrum devorat*: *Fernelius* in his second book *De abditis rerum causis*, extenuates it, and *Riolanus* in his Comment thereof positively denies it. Some have experimentally refuted it, as *Albertus Magnus*; and most plainly *Ulysses Aldrovandus*, whose words are these; *Ego ferri frustra devorare, dum Tridenti essem, observavi, sed quæ incocta rursus excerneret*, that is, at my being at Trent, I observed the Oestridge to swallow Iron, but yet to exclude it undigested again.

Now beside experiment, it is in vain to attempt against it by Philosophicall argument, it being an occult quality, which contemns the law of Reason, and defends it self by admitting no reason at all. As for its possibility we shall not at present dispute; nor will we affirm that Iron ingested, receiveth in the stomach of the Oestridge no alteration at all; but if any such there be, we suspect this effect rather from some way of corrosion, then any of digestion; not any liquid reduction or tendance to chilification by the power of naturall heat, but rather some attrition from an acide and vitriolous humidity in the stomach, which may absterse and shave the scorious parts thereof. So rusty Iron crammed down the throat of a Cock, will become terse and clear again in its gizzard: So the Counter which according to the relation of *Amatus*, remained a whole year in the body of a youth, and came out much consumed at last; might

How (possibly) the
stomack of the
Oestridge may
alter Iron.

might suffer this diminution, rather from sharp and acide humours, then the strength of naturall heat, as he supposeth, So silver swallowed and retained some time in the body, will turn black, as if it had been dipped in *Aqua fortis*, or some corrosive water; but Lead will remain unaltered; for that mettall containeth in it a sweet salt or sugar, whereby it resisteth ordinary corrosion, and will not easily dissolve even in *Aqua fortis*. So when for medicall uses, we take down the filings of Iron or Steel, we must not conceive it passeth unaltered from us; for though the grosser parts be excluded again, yet are the dissoluble parts extracted, whereby it becomes effectually in deopilation; and therefore for speedier operation we make extinctions, infusions, and the like, whereby we extract the salt and active parts of the medicine; which being in solution, more easily enter the veins. And this is that the Chymists mainly drive at in the attempt of their *Aurum Potabile*; that is, to reduce that indigestible substance into such a form as may not be ejected by siege, but enter the cavities, and lesse accessible parts of the body, without corrosion.

What the Chymists would have by their *Aurum Potabile*.

Aurum Potabile
longer of use, by
of Author. 110.

The ground of this conceit is its swallowing down fragments of Iron, which men observing, by a froward illation, have therefore conceived it digesteth them; which is an inference not to be admitted, as being a fallacy of the consequent, that is, concluding a position of the consequent, from the position of the antecedent. For many things are swallowed by animals, rather for condiment, gust or medicament, then any substantiall nutriment. So Poultry, and especially the Turkey, doe of themselves take down stones; and we have found at one time in the gizzard of a Turkey no lesse then seven hundred. Now these rather concur unto digestion, then are themselves digested; for we have found them also in the guts and excrements; but their descent is very slow, for we have given them stones and small pieces of iron, which eighteen daies after we have found remaining in the gizzard. And therefore the experiment of Langius and others might be mistaken, whilst after the taking they expected it should come down within a day or two after. Thus also we swallow cherry-stones, but void them unconcocted, and we usually say they preserve us from surfer; for being hard bodies they conceive a strong and durable heat in the stomach, and so prevent the crudities of their fruit; And upon the like reason do culinary operators observe, that flesh boils best, when the bones are boiled with it. Thus dogs will eat grasse, which they digest not: Thus Camels to make the water sapid, doe raise the mud with their feet: thus horses will knabble at wals, Pigeons delight in salt stones, Rats will gnaw Iron, and Aristotle saith the Elephant swalloweth stones. And thus may also the Oestridge swallow Iron; not as his proper aliment, but for the ends above expressed, and even as we observe the like in other animals.

FORWARD.

How Cherry-stones may be thought to prevent surfers upon eating Cherries.

What effect therefore may be expected from the stomach of an Oestridge by application alone to further digestion in ours, beside the experimentall refute of Galen, we referre it unto considerations above alledged; Or whether there be any more credit to be given unto the medicine of *Ælian*, who affirms the stones they swallow have a peculiar vertue for the eyes, then that of *Hermolaus* and *Pliny* drawn from the urine of this animall; let them determine who can swallow so strange a transmission of qualities, or beleve that any Bird or flying animall doth urine beside the Bat.

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That therefore an Oestridge will swallow or take down iron, is easily to be granted: that oftentimes they passe entire away, if we admit of ocular testimony not to be denied; and though some experiment may also plead, that sometimes they are so altered, as not to be found or excluded in any discern,

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No flying animal brings but
10 Balls. 111.

discernable parcels: yet whether this be not effected by some way of corrosion, from sharp and dissolving humidities, rather than any proper digestion, chylifactive mutation, or alimentall conversion, is with good reason doubted.

CHAP. XXIII.

Of Unicorns horn.

Great account and much profit is made of Unicorns horn, at least of that which beareth the name thereof; wherein notwithstanding, many I perceive suspect an Imposture, and some conceive there is no such animall extant. Herein therefore to draw up our detetminations, beside the severall places of Scripture mentioning this animall (which some perhaps may contend to be only meant of the Rhinoceros) we are so far from denying there is any Unicorn at all, that we affirm there are many kindes thereof. In the number of Quadrupedes, we will concede no lesse then five; that is, the Indian Oxe, the Indian Asse, the Rhinoceros, the Oryx, and that which is more eminently termed *Monoceros*, or *Unicornis*: Some in the list of fishes; as that described by Olaus, Albertus and others: and some unicorns we will allow even among insects; as those four kindes of nasicornous Beetles described by Muffetus.

Secondly, Although we concede there be many Unicorns, yet are we still to seek; for whereunto to affix this horn in question, or to determine from which thereof we receive this magnified medicine, we have no assurance, or any satisfactory decision. For although we single out one, and eminently thereto assigne the name of the Unicorn, yet can we not be secure what creature is meant thereby, what constant shape it holdeth, or in what number to be received. For as far as our endeavours discover, this animall is not uniformly described, but differently set forth by those that undertake it. Pliny affirmeth it is a fierce and terrible creature; Vartomannus a tame and mansuete animall: those which Garcias ab Horto described about the cape of good hope, were beheld with heads like horses; those which Vartomannus beheld, he described with the head of a Deere; Pliny, Ælian, Solinus, and after these from ocular assurance, Paulus Venetus affirmeth the feet of the Unicorn are undivided, and like the Elephants: But those two which Vartomannus beheld at Mecha, were as he describeth footed like a Goate. As Ælian describeth, it is in the bignesse of an Horse, as Vartomannus of a Colt; that which Thevet speaketh of was not so big as an Heifer; but Paulus Venetus affirmeth, they are but little lesse then Elephants. Which are discriminations very materiall, and plainly declare, that under the same name Authors describe not the same animall: so that the Unicorns horne of one, is not that of another, although we proclaim an equall vertue in either.

Thirdly, Although we were agreed what animall this was, or differed not in its description, yet would this also afford but little satisfaction; for the horne we commonly extoll, is not the same with that of the Ancients; for that in the description of Ælian and Pliny was black; this which is shewed amongst us is commonly white, none black; and of those five which Scaliger beheld, though one spadiceous, or of a light red, and two inclining to red, yet was there not any of this complexion amongst them.

Fourthly, What horns soever they be which passe amongst us, they are not

Some doubt to be made what ON? signific:h in Scripture.

The Unicorn how variously reported by Authors.

see more of unicorndy. 222

not surely the horns of any one kinde of animall, but must proceed from severall sorts of Unicorns. For some are wreathed, some not: That famous one which is preserved at S. Dennis near Paris, hath wreathy spires, and chockeary turnings about it, which agreeth with the description of the Unicorn horn in Ælian: Those two in the treasure of S. Mark are plain, and best accord with those of the Indian Asse, or the descriptions of other Unicorns: Albertus Magnus describeth one ten foot long, and at the base about thirteen inches compasse: And that of Antwerpe which Goropius Becanus describeth, is not much inferiour unto it; which best agree unto the descriptions of the Sea-Unicorns; for these, as Olaus affirmeth, are of that strength and bignesse, as able to penetrate the ribs of ships. The same is more probable, in that it was brought from Island, from whence, as Becanus affirmeth, three other were brought in his daies: And we have heard of some which have been found by the sea side, and brought unto us from America. So that while we commend the Unicorns horne, and conceive it peculiar but unto one animall; under apprehension of the same vertue, we use very many; and commend that effect from all, which every one confineth unto some one he hath either seen or described.

Fifthly, Although there be many Unicorns, and consequently many horns, yet many there are which bear that name, and currantly passe among us, which are no horns at all. Such are those fragments and pieces of *Lapis Ceratites*, commonly termed *Cornu fossile*, whereof Boetius had no lesse then twenty severall sorts presented him for Unicorns horn. Hereof in subterraneous cavities, and under the earth there are many to be found in severall parts of Germany; which are but the Lapidescencies and petrifactive mutations of hard bodies; sometime of horn, of teeth, of bones, and branches of trees, whereof there are some so imperfectly converted, as to retain the odor and qualities of their originals; as he relateth of pieces of Ashe and Wallnut. Again, in most if not all which passe amongst us, and are extolled for precious horns, we discover not one affection common unto other horns; that is, they mollifie not with fire, they soften not upon decoction or infusion, nor will they afford a jelly, or mucilaginous concretion in either; which notwithstanding we may effect in Goates horns, Sheeps, Cowes and Harts horn, in the horn of the Rhinoceros, the horn of the Pristis or Sword-fish. Nor doe they become friable or easily powderable by Philosophicall calcination, that is, from the vapor or steame of water, but split and rift contrary to other horns. Briefly that which is commonly received, and whereof there be so many fragments preserved in England; is not only no horn, but a substance harder then a bone, that is, the tooth of a Morse or Sea-horse; in the midst of the solid part containing a curdled grain, which is not to be found in Ivory. This in Northern regions is of frequent use for hafts of knives, or hilts of swords, and being burnt becomes a good remedy for fluxes: but Antidotally used, and exposed for Unicorns horn, it is an insufferable delusion; and with more veniable deceit, it might have been practised in Harts horn.

The like deceit may be practised in the teeth of other Sea-animals; in the teeth also of the Hippopotamus, or great animall which frequenteth the river Nilus: For we reade that the same was anciently used in stead of Ivory or Elephants tooth. Nor is it to be omitted, what hath been formerly suspected, but now confirmed by Olaus Wormius, and Thomas Bartholinus, that those long hornes preserved as pretious rarities in many places, are but the teeth of Narwhales; to be found about Island, Greenland and other Northern regions, of many feet long, commonly wreathed, very deeply fastened in the upper jaw, and standing directly forward, graphically described in

U

Bartholinus,

Unicorns horn
commonly used
in England, what
it is.

De Unicornu.

Bartholinus, according unto one sent from a Bishop of Island, not separated from the crany. Hereof Mercator hath taken notice in his description of Island: some relations hereof there seem to be in Purchas, who also delivereth that the horn at Windfore, was in his second voyage brought hither by Frobi-
sher. These before the Northern discoveries as unknown rarities were carried by Merchants into all parts of Europe; and though found on the Sea shoar were sold at very high rates, but are now become more common, and probably in time will prove of little esteem, and the bargain of Julius the third, be accounted a very hard one, who stuck not to give many thousand crowns for one.

Bezoar.

Nor is it great wonder we may be so deceived in this, being daily gulled in the brother antidote Bezoar; whereof though many be false, yet one there passeth amongst us of more intolerable delusion; somewhat paler then the true stone, and given by women in the extremity of great diseases, which notwithstanding is no stone, but seems to be the stony seed of some Litho-
permum or greater Grumwell; for being broken, it discovereth a kernell of a leguminous smell and tast, bitter like a Lupine, and will swell and sprout if set in the ground, and therefore more serviceable for issues, then dangerous and virulent diseases.

Sixtly, Although we were satisfied we had the Unicorns horn, yet were it no injury unto reason to question the efficacy thereof, or whether those virtues pretended doe properly belong unto it. For what we observe (and it escaped not the observation of Paulus Jovius many years past) none of the Ancients ascribed any medicinall or antidotall vertue unto the Unicorns horn; and that which *Ælian* extolleth, who was the first and only man of the Ancients who spake of the medicall vertue of any Unicorn, was the horn of the Indian Ass; whereof, saith he, the Princes of those parts make bowles and drink therein, as preservatives against poison, Convulsions and the Falling-sickness. Now the description of that horn is not agreeable unto that we commend; for that (saith he) is red above, white below, and black in the middle; which is very different from ours, or any to be seen amongst us. And thus, though the description of the Unicorn be very ancient, yet was there of old no vertue ascribed unto it; and although this amongst us receive the opinion of the same vertue, yet is it not the same horn whereunto the Ancients ascribed it.

Expulsive of Poisons.

Lastly, Although we allow it an Antidotall efficacy, and such as the Ancients commended, yet are there some virtues ascribed thereto by Moderns not easily to be received; and it hath surely fallen out in this as other magnified medicines, whose operations effectually in some diseases, are presently extended unto all. That some antidotall quality it may have we have no reason to deny; for since Elkes hooves and hornes are magnified for Epilepsies, since not only the bone in the heart, but the horn of a Deere is Alexipharmacall, and ingredient into the confection of Hyacinth, and the Electuary of Maximilian; we cannot without prejudice except against the efficacy of this. But when we affirm it is not only Antidotall to proper venomes, and substances destructive by qualities we cannot expresse; but that it resisteth also Sublimated Arsenick, and poisons which kill by second qualities, that is, by corrosion of parts; I doubt we exceed the properties of its nature, and the promises of experiment will not secure the adventure. And therefore in such extremities, whether there be not more probable relief from fat and oily substances, which are the open tyrants of salt and corrosive bodies, then precious and cordiall medicines which operate by secret and disputable proprieties; or whether he that swallowed Lime, and drank down Mercury water, did not
more

MS. p. 10. 1657

more reasonably place his cure in milk, butter or oyle, then if he had recurred unto Pearle and Bezoar; common reason at all times, and necessity in the like case would easily determine.

Since therefore there be many Unicorues; since that whereto we appropriate a horn is so variously described, that it seemeth either never to have been seen by two persons, or not to have been one animall; Since though they agreed in the description of the animall, yet is not the horn we extoll the same with that of the Ancients; Since what hornes soever they be that passe among us, they are not the hornes of one, but severall animals: Since many in common use and high esteem are no hornes at all: Since if they were true hornes, yet might their vertues be questioned: Since though we allowed some vertues, yet were not others to be received; with what security a man may rely on this remedy, the mistresse of fools hath already instructed some, and to wisdome (which is never too wise to learn) it is not too late to consider.

The Ancestral

CHAP. XXIV.

That all Animals of the Land, are in their kinde in the Sea.

THat all Animals of the Land, are in their kinde in the Sea, although received as a principle, is a tenent very questionable, and will admit of restraint. For some in the Sea are not to be matcht by any enquiry at Land, and hold those shapes which terrestrious formes approach not; as may be observed in the Moon-fish, or Orthoragoriscus, the severall sorts of Raia's, Torpedo's, Oysters, and many more; and some there are in the Land which were never maintained to be in the Sea, as Panthers, Hyæna's, Camels, Sheep, Molls, and others, which carry no name in Ichthyology, nor are to be found in the exact descriptions of Rondeletius, Gesner, or Aldrovandus.

History of
Fishes.

Again, Though many there be which make out their nominations, as the Hedge-hog, Sea-serpents, and others; yet are there also very many that bear the name of animals at Land, which hold no resemblance in corporall configuration; in which account we compute *Vulpecula*, *Canis*, *Rana*, *Passer*, *Cuculus*, *Asellus*, *Turdus*, *Lepus*, &c. wherein while some are called the Fox, the Dog, the Sparrow or Frog-fish, and are known by common names with those at Land; as their describers attest, they receive not these appellations from a totall similitude in figure, but any concurrence in common accidents, in colour, condition or single conformation. As for Sea-horses which much confirm this assertion; in their common descriptions, they are but Crotesco deliniations which fill up empty spaces in Maps, and meer pictoriall inventions, not any Physicall shapes: sutable unto those which (as Pliny delivereth) Praxiteles long agoe set out in the Temple of Domitius. For that which is commonly called a Sea-horse is properly called a Morfe, and makes not out that shape. That which the Ancients named Hippocampus is a little animall about six inches long, and not preferred beyond the classis of Insects. That they tearmed Hippopotamus an amphibious animall, about the River Nile, so little resembleth an horse, that as Mathiolus observeth in all, except the feet, it better makes out a swine. That which they tearmed a Lion, was but a kinde of Lobster: and that they called the Bear, was but one kinde of Crab; and that which

they named *Bos marinus*, was not as we conceive a fish resembling an Oxe, but a Skaite or Thornback, so named from its bignesse, expressed by the Greek word *Bous*, which is a prefix of augmentation to many words in that language.

And therefore although it be not denied that some in the water doe carry a justifiable resemblance to some at Land, yet are the major part which bear their names unlike; nor doe they otherwise resemble the creatures on earth, then they on earth the constellations which passe under animall names in heaven: nor the Dog-fish at Sea much more make out the Dog of the Land, then that his cognominall or name-fake in the heavens. Now if from a similitude in some, it be reasonable to inferre a correspondency in all; we may draw this analogy of animals upon plants; for vegetables there are which carry a near and allowable similitude unto animals. We might also conclude that animall shapes were generally made out in minerals: for severall stones there are that bear their names in relation to animals or their parts, as *Lapis anguinus*, *Conchites*, *Echinites*, *Encephalites*, *Ægophthalmus*, and many more; as will appear in the writers of Minerals, and especially in *Boëtius* and *Aldrovandus*.

Moreover if we concede, that the animals of one Element, might bear the names of those in the other, yet in strict reason the watery productions should have the prenomination: and they of the land rather derive their names, then nominate those of the sea. For the watery plantations were first existent, and as they enjoyed a priority in form, had also in nature precedent denominations: but falling not under that nomenclature of Adam, which unto terrestrious animals assigned a name appropriate unto their natures; from succeeding spectators they received arbitrary appellations, and were respectively denominated unto creatures known at land; who in themselves had independent names, and not to be called after them, which were created before them.

Lastly, By this assertion we restrain the hand of God, and abridge the variety of the creation; making the creatures of one Element, but an acting over those of another, and conjoining as it were the species of things which stood at distance in the intellect of God, and though united in the Chaos, had severall seeds of their creation. For although in that indistinguish't masse, all things seemed one; yet separated by the voice of God, according to their species they came out in incommunicated varieties, and irrelative feminalities, as well as divided places; and so although we say the world was made in six daies, yet was there as it were a world in every one; that is, a distinct creation of distinguish't creatures; a distinction in time of creatures divided in nature, and a severall approbation and survey in every one.

CHAP. XXV.

Concerning the common course of Diet, in making choice of some Animals, and abstaining from eating others.

WHy we confine our food unto certain Animals, and totally reject some others; how these distinctions crept into severall Nations; and whether this practice be built upon solid reason, or chiefly supported by custome or opinion; may admit consideration.

For

*Fab. Column.
de stirp. vario-
ribus, orthis,
Cercopitheco-
phora, Anthro-
pophora.*

For first there is no absolute necessity to feed on any; and if we resist not the streame of Authority, and severall diductions from holy Scripture; there was no Sarcophagie before the flood; and without the eating of flesh, our fathers from vegetable aliments, preserved themselves unto longer lives, then their posterity by any other. For whereas it is plainly said, I have given you every herb which is upon the face of all the earth, and every tree, to you it shall be for meat; presently after the deluge, when the same had destroyed or infirmed the nature of vegetables, by an expression of enlargement, it is again delivered: Every moving thing that liveth, shall be meat for you, even as the green herb, have I given you all things.

And therefore although it be said that Abel was a Shepherd, and it be not readily conceived, the first men would keep sheep, except they made food thereof: great Expositors will tell us, that it was partly for their skinnes, wherewith they were cloathed, partly for their milk, whereby they were sustained; and partly for Sacrifices, which they also offered.

And though it may seem improbable, that they offered flesh, yet eat not thereof; and Abel can hardly be said to offer the firstlings of his flock, and the fat or acceptable part, if men used not to taste the same, whereby to raise such distinctions: some will confine the eating of flesh unto the line of Cain, who extended their luxury, and confined not unto the rule of God. That if at any time the line of Seth eat flesh, it was extraordinary and only at their sacrifices; or else (as Grotius hinteth) if any such practice there were, it was not from the beginning; but from that time when the waies of men were corrupted, and whereof it is said, that the wickednesse of mans heart was great; the more righteous part of man-kinde probably conforming unto the diet prescribed in Paradise. and the state of innocency: and yet however the practice of men conformed, this was the injunction of God, and might be therefore sufficient, without the food of flesh.

That they fed not on flesh, at least the faithfull party before the flood, may become more probable, because they refrained the same for some time after. For so was it generally delivered of the golden age and raigne of Saturne; which is conceived the time of Noah, before the building of Babel. And he that considereth how agreeable this is unto the traditions of the Gentiles; that that age was of one tongue; that Saturn devoured all his sonnes but three; that he was the sonne of Oceanus and Thetis; that a Ship was his Symbole; that he taught the culture of vineyards, and the art of husbandry, and was therefore described with a sickle; may well conceive, these traditions had their originall in Noah. Nor did this practice terminate in him, but was continued at least in many after: as (beside the Pythagoreans of old, and Bannyans now in India, who upon single opinions refrain the food of flesh) ancient records doe hint or plainly deliver. Although we descend not so low, as that of Æsclepiades delivered by Porphyrius, that men began to feed on flesh in the raigne of Pygmaeon brother of Dido, who invented severall torments, to punish the eaters of flesh.

Nor did men only refrain from the flesh of beasts at first, but as some will have it, beasts from one another. And if we should beleieve very grave conjecturers, carnivorous animals now, were not flesh devourers then, according to the expression of the divine provision for them. To every beast of the earth, and to every fowle of the ayre, I have given every green herbe for meate, and it was so. As is also collected from the store laid up in the Ark; wherein there seems to have been no fleshie provision for carnivorous Animals. For of every kinde of unclean beast there went but two into the Ark: and therefore no stock of flesh to sustain them many daies, much lesse almost a year.

Eating of Flesh.

Gen. 1.29,

The naturall vertue of vegetables impaired by the deluge.

Gen. 9.3.

Eating of Flesh (probably) not so common before the flood.

μελίσσοις.

Gen. 1.30,

How Moses
might distinguish
beasts into clean
and unclean be-
fore the flood.

But when ever it be acknowledged that men began to feed on flesh, yet how they betook themselves after to particular kinds thereof, with rejection of many others, is a point not cleerly determined. As for the distinction of clean and unclean beasts, the originall is obscure, and salveh not our practice. For no Animall is naturally unclean, or hath this character in nature; and therefore whether in this distinction there were not some mysticall intention; whether Moses after the distinction made of unclean beasts, did not name these so before the flood by anticipation: whether this distinction before the flood, were not only in regard of sacrifices, as that delivered after was in regard of food: (for many were clean for food, which were unclean for sacrifice) or whether the denomination were but comparative, and of beasts lesse commodious for food, although not simply bad, is not yet resolved.

And as for the same distinction in the time of Moses, long after the flood, from thence we hold no restriction, as being no rule unto Nations besides the Jews in dieteticall consideration, or naturall choice of diet, they being enjoined, or prohibited certain foods upon remote and secret intentions; especially thereby to avoid community with the Gentiles upon promiscuous commensality: or to divert them from the Idolatry of Ægypt whence they came, they were enjoined to eat the Gods of Ægypt in the food of Sheep and Oxen. Withall in this distinction of Animals the consideration was hieroglyphicall; in the bosome and inward sense implying an abstinence from certain vices symbolically intimated from the nature of those animals; as may be well made out in the prohibited meat of Swine, Cony, Owl, and many more.

Inter quadri-
pedes mattya
prima Lepus.

At least the intention was not medicall, or such as might oblige unto conformity or imitation; For some we refrain which that Law alloweth, as Locusts and many others; and some it prohibiteth, which are accounted good meat in strict and medicall censure; as beside many fishes which have not finnes and scales, the Swine, Cony and Hare, a dainty dish with the Ancients; as is delivered by Galen, testified by Martial, as the popular opinion implied, that men grew fair by the flesh thereof; by the diet of Cato that is Hare and Cabbage; and the *Jus nigrum* or Black broath of the Spartans; which was made with the blood and bowels of an Hare.

And if we take a view of other Nations, we shall discover that they refrained many meats upon like considerations. For in some the abstinence was symbolical; so Pythagoras enjoined abstinence from fish: that is, luxurious and dainty dishes. So according to Herodotus, some Ægyptians refrained swines flesh, as an impure and sordid animall; which whoever but touched, was faine to wash himself.

Lib. 5. de bello
Gall. 143.

Some abstained superstitiously or upon religious consideration: So the Syrians refrained Fish and Pigeons; the Ægyptians of old, Dogges, Eeles and Crocodiles; though Leo Africanus delivers, that many of late, doe eat them with good gust; and Herodotus also affirmeth, that the Egyptians of Elephantina (unto whom they were not sacred,) did eat thereof in elder times: and Writers testifie, that they are eaten at this day in India and America. And so, as Cæsar reports, unto the ancient Britains it was piaculous to taste a Goose, which dish at present no table is without.

Unto some Nations the abstinence was politicall and for some civill advantage: So the Thessalians refrained Storkes, because they destroyed their serpents; and the like in sundry animals is observable in other Nations.

And under all these considerations were some Animals refrained; so the Jews abstained from Swine at first symbolically, as an Embleme of impurity; and not for fear of the Leprosie, as Tacitus would put upon them. The

Cretians

Cretians superstitiously, upon tradition that Jupiter was suckled in that country by a Sowe. Some Egyptians politically, because they supplied the labour of plowing by rooting up the ground. And upon like considerations perhaps the Phanicians and Syrians fed not on this animall: and as Solinus reports the Arabians also and Indians: a great part of mankind refraining one of the best foods, and such as Pythagoras himself would eat; who, as Aristoxenus records, refus'd not to feed on Pigges.

Aul. Gel. lib. 4.

Certain dishes in great request with the Ancients, not so much esteemed now.

Moreover while we single out severall dishes and reject others, the selection seems but arbitrary, or upon opinion: for many are commended and cried up in one age, which are decried and nauseated in another. Thus in the daies of Mecenas, no flesh was preferred before young Asses; which notwithstanding became abominable unto succeeding appetites. At the table of Heliogabalus the combs of Cocks were an esteemed service; which country stomachs will not admit at ours. The Sumen or belly and dugges of swine with pigge, and sometimes beaten and bruised unto death: the wombe of the same animall, especially that was barren, or else had cast her young ones, though a tough and membranous part, was magnified by Roman Palats; whereunto neverthelesse we cannot perswade our stomachs. How Alec, Muria and Garum, would humour our gust I know not; but surely few there are that could delight in their Cyceon; that is, the common draught of Honey, Cheese, parcht Barley-flower, Oyl and Wine; which notwithstanding was a commended mixture, and in high esteem among them. We mortifie our selves with the diet of fish, and think we fare courtly if we refrain from the flesh of other animals. But antiquity held another opinion hereof: when Pythagoras in prevention of luxury advised, not so much as to taste on fish. Since the Rhodians were wont to call them clowns that eat flesh; and since Plato to evidence the temperance of the noble Greeks before Troy, observed, that it was not found they fed on fish, though they lay so long near the Hellespont; and was only observed in the companions of Menelaus, that being almost starved, they betook themselves to fishing about Pharos.

Odyss. 4.

Nor will (I fear) the attest or prescript of Philosophers and Physitians, be a sufficient ground to confirm or warrant common practice, as is deducible from ancient Writers, from Hippocrates, Galen, Simeon Sethi; and the later tracts of Nonnus and Castellanus. So Aristotle and Albertus commend the flesh of young Hawkes; Galen the flesh of Foxes about Autumne when they feed on Grapes; but condemneth Quailes, and ranketh Geese but with Oestriges; which notwithstanding present practice and every table extolleth. Men think they have fared hardly, if in times of extremity they have descended so low as Doggs; but Galen delivereth, that young, fat and gelded, they were the food of many Nations; and Hippocrates ranketh the flesh of Whelps with that of Birds; who also commends them against the Spleen, and to promote conception. The opinion in Galens time, which Pliny also followeth, deeply condemned Horsflesh, and conceived the very blood thereof destructive; but no diet is more common among the Tartars, who also drink their blood. And though this may only seem an adventure of Northern stomachs, yet as Herodotus tells us, in the hotter clime of Persia, the same was a convivial dish, and solemnly eaten, at the feasts of their nativities: whereat they dressed whole Horses, Camels and Asses; contemning the poverty of Grecian feasts, as unfurnish'd of dishes sufficient to fill the bellies of their guests.

Non. de re ci. baria.

Cast. de esu carnium. Gal. Alim. fac. lib. 3. 141.

Gal. Simpl. fac. lib. 3.

Hip de morbis de superfit.

Again, While we confine our diet in severall places, all things almost are eaten, if we take in the whole earth: for that which is refused in one country is accepted in another, and in the collective judgement of the world, particular distinctions are overthrown. Thus were it not hard to shew, that Tygers;

See his Religion
Medi. p. 80.

Tigers, Elephants, Camels, Mice, Bats and others, are the food of severall countries; and Lerus with others delivers, that some Americans eat of all kindes, not refraining Toads and Serpents: and some have runne so high, as not to spare the flesh of man: a practice inexcusable, nor to be drawn into example; a diet beyond the rule and largest indulgence of God.

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As for the objection against beasts and birds of prey, it acquitteth not our practice, who observe not this distinction in fishes: nor regard the same in our diet of Pikes, Perches and Eeles; Nor are we excused herein, if we examine the stomachs of Mackerels, Cods and Whittings. Nor is the foulness of feed sufficient to justify our choice; for (beside that their naturall heat is able to convert the same into laudable aliment) we refuse not many whose diet is more impure then some which we reject; as may be considered in hogs, ducks, puits and many more.

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A Problem.

Thus we perceive the practice of diet doth hold no certain course, nor solid rule of selection or confinement; Some in an indistinct voracity eating almost any, others out of a timorous preopinion, refraining very many. Wherein indeed necessity, reason and Physick, are the best determinators. Surely many animals may be fed on, like many plants; though not in alimentall yet medicall considerations: Whereas having raised Antipathies by pre-judgement or education, we often nauseate proper meats, and abhorre that diet which disease or temper requireth.

Now whether it were not best to conform unto the simple diet of our forefathers, whether pure and simple waters were not more healthfull then fermented liquors; whether there be not an ample sufficiency without all flesh, in the food of honey, oyl, and the severall parts of milk: in the variety of grains, pulses, and all sorts of fruits; since either bread or beverage may be made almost of all? whether nations have rightly confined unto severall meats? or whether the common food of one countrey be not more agreeable unto another? how indistinctly all tempers apply unto the same, and how the diet of youth and old age is confounded: were considerations much concerning health, and might prolong our daies, but must not this discourse.

CHAP. XXVI.

Compendiously of sundry Tenents concerning other Animals, which examined prove either false or dubious.

I. **A**Nd first from great Antiquity, and before the Melody of Syrens, the Musickall note of Swans hath been commended, and that they sing most sweetly before their death. For thus we reade in Plato, that from the opinion of Metempsychosis, or transmigration of the soules of men into the bodies of beasts most futable unto their humane condition, after his death, Orpheus the Musician became a Swan. Thus was it the bird of Apollo the god of Musick by the Greeks; and an Hieroglyphick of Musick among the Egyptians, from whom the Greeks derived the conception; hath been the affirmation of many Latines, and hath not wanted assertors almost from every Nation.

Of Swans, and
their singing be-
fore death.

All which notwithstanding, we finde this relation doubtfully received by Ælian, as an hearsay account by Bellonius, as a false one by Pliny; expressly

preſſy refuted by Myndius in Athenæus; and ſeverely rejected by Scaliger; whoſe words unto Cardan are theſe. *De Cygni vero cantu ſuaviſſimo quem cum parente mendaciorum Græcia jactare auſus es, ad Luciani tribunal, apud quem novi aliquid dicis, ſtatuo.* Authors alſo that countenance it; ſpeak not ſatisfaſtorily of it. Some affirming they ſing not till they die; ſome that they ſing, yet die not. Some ſpeak generally, as though this note were in all; ſome but particularly, as though it were only in ſome; ſome in places remote, and where we can have no triall of it; others in places where every experience can refute it; as Aldrovandus upon relation, delivered, concerning the Muſick of the Swans on the river of Thames near London.

Now that which countenanceth; and probably confirmeth this opinion, is the ſtrange and unuſuall conformation of the winde pipe, or vocall organ in this animall: obſerved firſt by Aldrovandus; and conceived by ſome contrived for this intention: for in its length it farre exceedeth the gullet; and hath in the cheſt a ſinuous revolution, that is; when it ariſeth from the lungs, it aſcendeth not directly unto the throat, but aſcending firſt into a capſulary reception of the breſt bone, by a Serpentine and Trumpet recurvation it aſcendeth again into the neck; and ſo by the length thereof a great quantity of air is received, and by the figure thereof a muſicall modulation effected. But to ſpeak indifferently, this formation of the Weazon, is not peculiar unto the Swan, but common alſo unto the Platea or Shovelard, a bird of no Muſicall throat; And as Aldrovandus confeſſeth may thus be contrived in the Swan to contain a larger ſtock of air, whereby being to feed on weeds at the bottom, they might the longer ſpace detain their heads under water. But were this formation peculiar, or had they unto this effect an advantage from this part: yet have they a known and open diſadvantage from another; that is, a flat bill. For no Latiroſtrous animall (whereof nevertheleſſe there are no ſlender numbers) were ever commended for their note, or accounted among thoſe animals which have been inſtructed to ſpeak.

When therefore we conſider the diſſention of Authors, the falſity of relations, the indiſpoſition of the Organs, and the immuſicall note of all we ever beheld or heard of; if generally taken and comprehending all Swans, or of all places, we cannot aſſent thereto. Surely he that is bit with a Tarantula, ſhall never be cured by this Muſick; and with the ſame hopes we expect to hear the harmony of the Spheres.

2. That there is a ſpeciall propriety in the fleſh of Peacocks roſt or boiled, to preſerve a long time incorrupted, hath been the aſſertion of many; ſtands yet confirmed by Auſtin, *De Civitate Dei*; by Gygas Sempronius, in Aldrovandus, and the ſame experiment we can confirm our ſelves, in the brawn or fleſhy parts of Peacocks ſo hanged up with thred, that they touch no place whereby to contract a moiſture; and hereof we have made triall both in ſummer and winter. The reaſon, ſome, I perceive, attempt to make out from the ſiccity and drineſſe of its fleſh, and ſome are content to reſt in a ſecret propriety thereof. As for the ſiccity of the fleſh, it is more remarkable in other animals, as Eagles, Hawkes, and birds of prey; That it is a propriety or agreeable unto none other, we cannot with reaſon admit: for the ſame preſervation, or rather incorruption we have obſerved in the fleſh of Turkeys, Capons, Hares, Partridge, Veniſon, ſuſpended freely in the air, and after a year and a half, dogs have not reſuſed to eat them.

As for the other conceit that a Peacock is aſhamed when he looks on his legges, as is commonly held, and alſo delivered by Cardan; beſide what hath been ſaid againſt it by Scaliger, let them beleieve that hold ſpecificall deformities; or that any part can ſeem unhanſome to their eies, which hath

The figurati-
on to be found
in Elkes, and
not in com-
mon Swans.

bird 314. 9 146

bird 152. 7

Of the Peacock.

appeared good and beautifull unto their makers. The occasion of this conceit, might first arise from a common observation, that when they are in their pride, that is, advance their train, if they decline their neck to the ground, they presently demit and let fall the same: which indeed they cannot otherwise do; for contracting their body, and being forced to draw in their foreparts, to establish the hinder in the elevation of the train; if the foreparts depart and incline to the ground, the hinder grow too weak, and suffer the train to fall. And the same in some degree is also observable in Turkeys.

Of the Stork.

3. That Storkes are to be found and will only live in Republickes or free States, is a pretty conceit to advance the opinion of popular policies, and from Antipathies in nature, to disparage Monarchicall government. But how farre agreeable unto truth, let them consider who reade in Pliny, that among the Thessalians who were governed by Kings, and much abounded with Serpents, it was no lesse then capitall to kill a Stork. That the ancient Egyptians honoured them, whose government was from all times Monarchicall. That Bellonius affirmeth, men make them nests in France. That relations make them common in Persia, and the dominions of the great Turk. And lastly, how Jeremy the Prophet delivered himself unto his countrey men, whose government was at that time Monarchicall. The Stork in the heaven knoweth her appointed times, the Turtle, Crane and Swallow observe the time of their coming, but my people know not the judgement of the Lord. Wherein to exprobrate their stupidity, he induceth the providence of Storks. Now if the bird had been unknown, the illustration had been obscure, and the exprobration not so proper.

Jer. 8. 7.

Of the Bittor.

4. That a Bittor maketh that mugient noise, or as we term it Bumping by putting its bill into a reed as most beleieve, or as Bellonius and Aldrovandus conceive, by putting the same in water or mud, and after a while retaining the air by suddenly excluding it again, is not so easily made out. For my own part, though after diligent enquiry, I could never behold them in this motion; Notwithstanding by others whose observations we have expressly requested, we are informed, that some have beheld them making this noise on the shore, their bills being far enough removed from reed or water; that is, first strongly attracting the air, and unto a manifest distention of the neck, and presently after with great contention and violence excluding the same again. As for what others affirm of putting their bill in water or mud, it is also hard to make out. For what may be observed from any that walketh the Fens, there is little intermission, nor any observable pause, between the drawing in and sending forth of their breath. And the expiration or breathing forth doth not only produce a noise, but the inspiration or hailing in of the air, affordeth a sound that may be heard almost a flight-shot.

Now the reason of this strange and peculiar noise, is well deduced from the conformation of the windpipe, which in this bird is different from other volatiles. For at the upper extreame it hath no Larinx, or throttle to qualifie the sound, and at the other end, by two branches deriveth it self into the Lungs. Which division consisteth only of Semicircular fibers, and such as attain but half way round the part; By which formation they are dilatible into larger capacities, and are able to contain a fuller proportion of air; which being with violence sent up the weazon, and finding no resistance by the Larinx, it issueth forth in a sound like that from cavernes, and such as sometimes subterraneous eruptions, from hollow rocks afford; As Aristotle observeth in a Problem of the 25. Section, and is observable in pichers, bottles, and that instrument which Aponensis upon that Problem describeth, wherewith in Aristotles time Gardiners affrighted birds.

5. That

5. That whelps are blinde nine daies and then begin to see, is the common opinion of all, and some will be apt enough to descend unto oathes upon it. But this I finde not answerable unto experience; for upon a strict observation of many, I have not found any that see the ninth day, few before the twelfth, and the eies of some not open before the fourteenth day. And this is agreeable unto the determination of Aristotle: who computeth the time of their anopsie or invision by that of their gestation. For some, saith he, do go with their young, the sixt part of a year, ^{or date} of two over or under, that is, about sixty daies or nine weeks; and the whelps of these see not till twelve daies. Some go the fift part of a year, that is, seventy one daies, and these saith he, see not before the fourteenth day. Others doe go the fourth part of a year, that is, three whole moneths, and these, saith he, are without sight no lesse then seventeen daies. Wherein although the accounts be different, yet doth the least thereof exceed the term of nine daies which is so generally received. And this compute of Aristotle doth generally overthrow the common cause alleadged for this effect, that is, a precipitation or over-hasty exclusion before the birth be perfect, according unto the vulgar Adage, *Festinus canis cæcos parit catulos*: for herein the whelps of longest gestation, are also the latest in vision. The manner hereof is this. At the first littering their eies are fastly closed, that is, by coalition or joining together of the eyelids, and so continue untill about the twelfth day; at which time they begin to separate, and may be easily divelled or parted asunder; they open at the inward canthis or greater angle of the eye, and so by degrees dilate themselves quite open. An effect very strange, and the cause of much obscurity, wherein as yet mens enquiries are blinde, and satisfaction acquirable from no man. What ever it be, thus much we may observe, those animals are only excluded without sight, which are multiparous and multifidous, that is, which have many at a litter, and have also their feet divided into many portions. For the Swine although multiparous, yet being bisulcous, and only cloven hoofed, is not excluded in this manner, but farrowed with open eies, as other bisulcous animals.

Of Whelps.

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6. The Antipathy between a Toad and a Spider, and that they poisonously destroy each other, is very famous, and solemne Stories have been written of their combats, wherein most commonly the victory is given unto the Spider. Of what Toades and Spiders it is to be understood, would be considered. For the Phalangium and deadly Spiders, are different from those we generally behold in England. However the verity hereof, as also of many others, we cannot but desire; for hereby we might be surely provided of proper Antidotes in cases which require them; But what we have observed herein, we cannot in reason conceale; who having in a glasse included a Toad with severall Spiders, we beheld the Spiders without resistance to sit upon his head and passe over all his body, which at last upon advantage he swallowed down, and that in few houres, unto the number of seven. And in the like manner will Toades also serve Bees, and are accounted enemies unto their Hives.

Of a Toad and a Spider.

Ed. 316. * So it is resolved in
Romanes, t. 3. Lib. 8. Knight's
at 2. 1. 1. 1.

Like to story of a lion & the
Cocks immediately following.

7. Whether a Lion be also afraid of a Cock, as is related by many, and beleevd by most, were very easie in some places to make triall. Although how farre they stand in fear of that animall, we may sufficiently understand, from what is delivered by Camerarius, whose words in his Symbola are these; *Nostri temporibus in Aula serenissimi Principis Bavariae, unus ex Leonibus miris saltibus in vicinam cujusdam domus aream sese dimisit, ubi Gallinaciorum cantum aut clamores nihil reformidans, ipsos unâ cum plurimis gallinis devoravit.* That is, In our time in the Court of the Prince of Bavaria, one

Of a Lion and a Cock.

weak in rainy season, and toward winter; for then the air is moist, and the inward spirit growing weak, makes a languid and dumb allision upon the parts.

11. There is found in the Summer a kinde of Spider called a Tainct, of a red colour, and so little of body that ten of the largest will hardly outway a grain; this by Countrey people is accounted a deadly poison unto Cowes and Horses; who, if they suddenly die, and swell thereon, ascribe their death hereto, and will commonly say, they have licked a Tainct. Now to satisfie the doubts of men, we have called this tradition unto experiment; we have given hereof unto Dogs, Chickens, Calves and Horses, and not in the singular number; yet never could finde the least disturbance ensue. There must be therefore other causes enquired of the sudden death and swelling of cattell; and perhaps this insect is mistaken, and unjustly accused for some other. For some there are which from elder times have been observed pernicious unto cattell, as the Buprestis or Burstcow, the Pityocampe or eruca Pinuum, by Dioscorides, Galen and Aetius, the Staphilinus described by Aristotle and others, or those red Phalangious Spiders like Cantharides mentioned by Muffetus. Now although the animall may be mistaken and the opinion also false, yet in the ground and reason which makes men most to doubt the verity hereof, there may be truth enough, that is, the inconsiderable quantity of this insect. For that a poison cannot destroy in so small a bulk, we have no reason to affirm. For if as Leo Africanus reporteth, the tenth part of a grain of the poison of Nubia will dispatch a man in two hours; if the bite of a Viper and sting of a Scorpion, is not conceived to impart so much; if the bite of an Asp will kill within an hour, yet the impression scarce visible, and the poison communicated not ponderable; we cannot as impossible reject this way of destruction; or deny the power of death in so narrow a circumscription.

12. Wondrous things are promised from the Glow-worm; thereof perpetuall lights are pretended, and waters said to be distilled which afford a lustre in the night; and this is asserted by Cardan, Albertus, Gaudentius, Mizaldus and many others. But hereto we cannot with reason assent: for the light made by this animall depends upon a living spirit, and seems by some vitall irradiation to be actuated into this lustre. For when they are dead they shine not, nor alwaies while they live; but are obscure or light, according to the diffusion of this spirit, and the protrusion of their luminous parts, as observation will instruct us. For this flammeous light is not over all the body, but only visible on the inward side, in a small white part near the taile. When this is full and seemeth protruded, there ariseth a double flame of a circular figure and Emerald green colour; which is discernable in any dark place in the day; but when it falleth and seemeth contracted, the light disappeareth, and the colour of the part only remaineth. Now this light, as it appeareth and disappeareth in their life, so doth it go quite out at their death. As we have observed in some, which preserved in fresh grasse have lived and shined eighteen daies; but as they declined their light grew languid, and at last went out with their lives. Thus also the Torpedo which alive hath a power to stupifie at a distance, hath none upon contact being dead, as Galen and Rondeletius particularly experimented. And this hath also disappointed the mischief of those intentions, which study the advancement of poisons; and fancie destructive compositions from Aspes or Vipers teeth, from Scorpions or Hornet stings. For these omit their efficacy in the death of the individuall, and act but dependantly on their formes. And thus far also those Philosophers concur with us which held the Sun and Stars were living creatures, for they conceived their lustre depended on their lives; but if they ever died their light must perish also.

Of a Tainct.

97.

151. # 76.

213

Of the Glow-worm.

Cist. Supra. 104.

329.

34.

Of the Pismire.

Nemalab a
Nanal circumcidit.

A naturall vicissitude of generation in homogenous things.

Of the Chicken.

203.

True it is, that a Glow-worm will afford a faint light, almost a daies space when many will conceive it dead; but this is a mistake in the compute of death, and term of disanimation; for indeed, it is not then dead, but if it be distended will slowly contract it self again, which when it cannot doe, it ceaseth to shine any more. And to speak strictly it is no easie matter to determine the point of death in insects and creatures who have not their vitalities radically confined unto one part; for they are not dead when they cease to move or afford the visible evidences of life; as may be observed in flies, who when they appear even desperate and quite forsaken of their formes; by vertue of the Sun or warm ashes will be revoked unto life, and perform its functions again.

13. The wisdom of the Pismire is magnified by all, and in the Panegyricks of their providence we alwaies meet with this, that to prevent the growth of corn which they store up, they bite off the end thereof: And some have conceived that from hence they have their name in Hebrew: From whence ariseth a conceit that corn will not grow if the extreame be cut or broken. What other provision they make for this intention we know not, but herein we finde no security to prevent its germination; as having made triall in grains whose ends cut off have notwithstanding suddenly sprouted, and according to the law of their kindes; that is, the roots of barley and oates at contrary ends, of wheat and rye at the same. And therefore some have delivered that after rainy weather they dry these grains in the Sun; which if effectually, we must conceive to be made in a high degree and above the progression of Malt; for that Malt will grow, this year hath informed us and that unto a perfect ear.

And if that be true which is delivered by many, and we shall further experiment, that a decoction of Toad-stooles if poured upon earth, will produce the same again: If Sowthistles will abound in places manured with dung of Hogs, which feed much upon that plant: If Horsedung reproduceth oates; If windes and rains will transport the seminals of plants, it will not be easie to determine where the power of generation ceaseth. The forms of things may lie deeper then we conceive them; seminall principles may not be dead in the divided atomes of plants; but wandring in the ocean of nature, when they hit upon proportionable materials, may unite, and return to their visible selves again.

CHAP. XXVII.

Of some others.

THat a Chicken is formed out of the yelk of the egge, with some ancient Philosophers the people still opinion. Whether it be not rather the nutriment of the Pullet, may also be considered: Since umbilicall vessels are carried unto it: Since much of the yelk remaineth after the Chicken is formed: Since in a Chicken newly hatched, the stomach is tinged yellow, and the belly full of yelk, which is drawn in at the navell or umbilicall vessels toward the vent, as may be discerned in Chickens, within a day or two before exclusion.

Whether the Chicken be made out of the white, or that be not also its aliment, is likewise very questionable: Since one umbilicall vessell is derived unto it: Since after the formation and perfect shape of the Chicken, much of the white remaineth.

Whether

Whether it be not made out of the grando gallature, germe or tredde of the egge, as Aquapendente and stricter enquiry informeth us, doth seem of lesser doubt: for at the blunter end it is not discovered after the Chicken is formed; by this also the yelk and white are continued, whereby it may conveniently receive its nutriment from them both.

Now that from such slender materials, nature should effect this production, it is no more then is observed in other animals, and even in grains and kernels, the greatest part is but the nutriment of that generative particle, so disproportionable unto it.

A greater difficulty in the doctrine of egges, is, how the sperm of the Cock ~~im~~proliferates and makes the ovall conception fruitfull, or how it attaineth unto every egge; since the vitellary or place of the yelk is very high: Since the ovary or part where the white involveth it, is in the second region of the matrix, which is somewhat long and inverted: Since also a Cock will in one day fertilitate the whole racemation or cluster of egges, which are not excluded in many weeks after.

Of Egges.

That the sex is discernable from the figure of egges, or that Cocks or Hens proceed from long or round ones, as many contend, experiment will easily frustrate.

The Egyptians observed a better way to hatch their egges in ovens, then the Babylonians to roast them at the bottom of a sling, by swinging them round about, till heat from motion had concocted them; for that confuseth all parts without any such effect.

99. 98.

Though slight distinction be made between boiled and roasted egges, yet is there no slender difference, for the one is much drier then the other: the egge expiring lesse in the elixation or boiling; whereas in the assation or roasting, it will sometimes abate a dragme, that is threescore grains in weight. So a new laid egge will not so easily be boiled hard, because it contains a greater stock of humid parts; which must be evaporated, before the heat can bring the inexhalable parts into consistence.

149.

Why the Hen hatcheth not the egge in her belly, or maketh not at least some rudiment thereof within her self, by the naturall heat of inward parts, since the same is performed by incubation from an outward warmth after? Why the egge is thinner at one extreame? Why there is some cavity or emptinesse at the blunter end? Why we open them at that part? Why there is also a little grando or tred at the lesser end? Why the greater end is first excluded? Why some egges are not ovall but round, as those of fishes? &c. are problemes, whose decisions would too much enlarge this discourse.

That Snakes and Vipers doe sting or transmit their mischief by the taile, is a common expression not easily to be justified; and a determination of their venoms unto a part, wherein we could never finde it, the poison lying about the teeth, and communicated by bite, in such are destructive: And therefore when biting Serpents are mentioned in the Scripture, they are not differentially set down from such as mischief by stings, nor can conclusions be made conformable to this opinion, because when the rod of Moses was turned into a Serpent, God determinately commanded him to take up the same by the taile.

Of Snakes, &c.

Nor are all Snakes of such empoisoning qualities, as common opinion presumeth; as is confirmable from the ordinary green Snake with us, from severall histories of domestick Snakes, from ophiophagous nations and such as feed upon Serpents.

Surely the destructive delusion of Satan in this shape, hath much enlarged the opinion of their mischief. Which notwithstanding was not so high with the

the

the heathens, in whom the devil had wrought a better opinion of this animall, being sacred unto the Egyptians, Greeks and Romans, and the common symbole of sanity; in the shape whereof Æsculapius the god of health appeared unto the Romans, accompanied their Embassadors to Rome from Epidaurus; and the same did stand in the Tiberine Isle upon the Temple of Æsculapius.

Some doubt many have of the Tarantula or poisonous Spider of Calabria, and that magicall cure of the bite thereof by Musick: But since we observe that many attest it from experience: Since the learned Kircherius hath positively averred it, and set down the songs and tunes solemnly used for it; Since some also affirm the Tarantula it self will daunce upon certain stroaks, whereby they set their instruments against its poison; we shall not at all question it.

Much wonder is made of the Boramez, that strange plant-animall or vegetable Lamb of Tartary, which Wolves delight to feed on, which hath the shape of a Lamb, affordeth a bloudy juice upon breaking, and liveth while the plants be consumed about it; and yet if all this be no more then the shape of a Lamb in the flower or seed, upon the top of the stalk, as we meet with the formes of Bees, Flies and Dogs in some others, he hath seen nothing that shall much wonder at it.

It may seem too hard to question the swiftnesse of Tigers, which hath therefore given names unto Horses, Ships and Rivers, nor can we deny what all have thus affirmed; yet cannot but observe, that Jacobus Bontius late Physitian at Java in the East Indies, as an ocular and frequent witnesse is not afraid to deny it; to condemn Pliny who affirmeth it, and that indeed it is but a slow and tardigradous animall, preying upon advantage, and otherwise may be escaped.

Many more there are whose serious enquiries we must request of others, and shall only awake considerations; Whether that common opinion that Snakes doe breed out of the back or spinall marrow of man, doth build upon any constant root or seed in nature; or did not arise from contingent generations in some single bodies remembred by Pliny or others, and might be paralleld since in living corruptions of the guts and other parts; which regularly proceed not to putrifications of that nature.

Whether the story of the Remora be not unreasonably amplified; whether that of Bernacles and Goosetrees be not too much enlarged; whether the common history of Bees will hold, as large accountants have delivered; whether the brains of Cats be attended with such destructive malignities, as Dioscorides and others put upon them.

Whether the fasting spittle of man be poison unto Snakes and Vipers, as experience hath made us doubt? Whether the Nightingals setting with her breast against a thorn, be any more then that she roosteth in thorny and prickly places, where Serpents may least approach her? Whether Mice may be bred by putrification as well as univocall production, as may be easily beleaved, if that receipt to make Mice out of wheat will hold, which Helmont hath delivered. Whether Quails from any idiosyncrasy or peculiarly of constitution, doe innocuously feed upon Hellebore, or rather sometime but medically use the same; because we perceive that staves, which are commonly said harmlessly to feed on Hemlock, doe not make good the tradition; and he that observes what vertigoes, cramps and convulsions follow thereon in these animais, will be of our belief.

THE

bid. 145. *

See this Animal largely Discours'd
of by Sandys in his Travels. lib. 4.
page. 249.

98

110.

Helin, Imago
fermenti, &c.



THE FOURTH BOOK:

Of many popular and received Tenents concerning Man, which examined, prove either false or dubious.

CHAP. I.

Of the erectnesse of Man.



That onely Man hath an erect figure; and for to behold and look up toward heaven, according to that of the Poet,

*Pronaque cum spectant animalia cetera terram,
Os homini sublime dedit, celumque tueri
Jussit, & erectos ad sidera tollere vultus,*

is a double assertion, whose first part may be true; if we take erectnesse strictly, and so as Galen hath defined it; for they only, saith he, have an erect figure, whose spine and thigh-bone are carried in right lines; and so indeed of any we yet know, Man only is erect. For the thighs of other animals doe stand at angles with their spine, and have rectangular positions in birds, and perfect Quadrupeds; nor doth the Frog, though stretched out, or swimming, attain the rectitude of man, or carry its thigh without all angularity. And thus is it also true that man only sitteth, if we define sitting to be a firmation of the body upon the Ischias: wherein if the position be just and naturall, the thigh-bone lieth at right angles to the spine, and the leg bone or tibia to the thigh. For others when they seem to sit, as Dogs, Cats, or Lions, doe make unto their spine acute angles with their thigh, and acute to the thigh with their shank. Thus is it likewise true, what Aristotle alledgeth in that Problem; why man alone suffereth pollutions in the night? because man only lieth upon his back; if we define not the same by every supine position, but when the spine is in rectitude with the thigh, and both with the armes lie parallell to the Horizon; so that a line through their navel will passe through the Zenith and centre of the earth; and so cannot other animals lie upon their backs; for though the spine lie parallell with the Horizon, yet will their legs incline, and lie at angles unto it. And upon these three divers positions in man, wherein the spine can only be at right lines with the thigh, arise those remarkable postures, prone, supine and erect; which are but differenced in situation or in angular postures upon the back, the belly and the feet.

What figure in animals is properly erect.

What science or sitting.

Εὐεργωνίδης.

Y

But

Observe also
the *Uria Bel-
lonij* and *Mer-
gus major*.

Describers of
Animals.

Plemp. Ophthal-
mographia.

But if erectnesse be popularly taken, and as it is largely opposed unto prone-
nesse, or the posture of animals looking downwards, carrying their venters
or opposite part to the spine directly towards the earth, it may admit of
question. For though in Serpents and Lizards we may truly allow a prone-
nesse, yet Galen acknowledgeth that perfect Quadrupeds, as Horses, Oxen
and Camels, are but partly prone, and have some part of erectnesse. And
birds or flying animals, are so farre from this kinde of pronenesse, that they
are almost erect; advancing the head and breast in their progression, and
only prone in the act of volitation. And if that be true which is delivered
of the Penguin or *Anser Magellanicus*, often described in Maps about those
Straits, that they go erect like men, and with their breast and belly doe
make one line perpendicular unto the axis of the earth; it will make up the
exact erectnesse of man. Nor will that insect come very short which we
have often beheld, that is, one kinde of Locust which stands not prone, or
a little inclining upward, but in a large erectnesse; elevating alwaies the two
fore legs, and sustaining it self in the middle of the other four; by Zoogra-
phers called *mantis*, and by the common people of Province, *Praga Dio*,
the Prophet and praying Locust; as being generally found in the posture
of supplication, or such as resembleth ours, when we lift up our hands to
heaven.

As for the end of this erection, to look up toward heaven; though con-
firmed by severall testimonies, and the Greek Etymology of man, it is not so
readily to be admitted; and as a popular and vain conceit was anciently re-
jected by Galen; who in his third, *De usu partium*, determines, that man is
erect because he was made with hands, and was therewith to exercise all Arts,
which in any other figure he could not have performed; as he excellently de-
clareth in that place, where he also proves that man could have been made nei-
ther Quadruped nor Centaur.

And for the accomplishment of this intention, that is, to look up and be-
hold the heavens, man hath a notable disadvantage in the eyelid; whereof
the upper is farre greater then the lower, which abridgeth the sight up-
wards; contrary to those of birds, who herein have the advantage of man:
Insomuch that the learned Plempius is bold to affirm that if he had had the
formation of the eyelids, he would have contrived them quite otherwise.

The ground and occasion of this conceit was a literall apprehension of a
figurative expression in Plato, as Galen thus delivers; To opinion that man
is erect to look up and behold the heavens, is a conceit only fit for those that
never saw the fish *Uranoscopus*, that is, the Beholder of heaven; which
hath its eyes so placed, that it looks up directly to heaven; which man
doth not, except he recline, or bend his head backward: and thus to look
up to heaven, agreeth not only unto Men, but Asses; to omit birds with
long necks, which look not only upwards, but round about at pleasure; and
therefore men of this opinion understood not Plato when he said that man
doth *Sursum aspicere*; for thereby was not meant to gape, or look upward
with the eye; but to have his thoughts sublime; and not only to behold, but
speculate their nature, with the eye of the understanding.

Now although Galen in this place makes instance but in one, yet are there
other fishes, whose eies regard the heavens, as Plane, and cartilaginous
fishes, as pectinals, or such as have their bones made laterally like a comb;
for when they apply themselves to sleep or rest upon the white side, their
eies on the other side look upward toward heaven. For birds, they gene-
rally carry their heads erectly like man, and have advantage in their upper
eyelid; and many that have long necks, and bear their heads somewhat
backward,

backward, behold farre more of the heavens, and seem to look above the æquinoxiall circle; and so also in many Quadrupeds, although their progression be partly prone, yet is the sight of their eye direct, not respecting the earth but heaven; and makes an higher arch of altitude then our own. The position of a Frogge with his head above water exceedeth these; for therein he seemes to behold a large part of the heavens, and the acies of his eye to ascend as high as the Tropick; but he that hath beheld the posture of a Bittor, will not deny that it beholds almost the very Zenith.

Point of heaven over our heads.

CHAP. II.

Of the Heart.

THAT the Heart of Man is seated in the left side, is an asseveration, which strictly taken, is refutable by inspection; wherèby it appears the base and centre thereof is in the midst of the chest; true it is that the Mucro or point thereof inclineth unto the left; for by this position it giveth way unto the ascension of the midriffe, and by reason of the hollow veine could not commodiously deflect unto the right. From which diversion, nevertheless we cannot so properly say 'tis placed in the left, as that it consisteth in the middle, that is, where its centre resteth; for so doe we usually say a Gnomon or needle is in the middle of a Diall, although the extreame may respect the North or South and approach the circumference thereof.

How a mans heart is placed in his body.

The ground of this mistake is a generall observation from the pulse or motion of the heart, which is more sensible on this side; but the reason hereof is not to be drawn from the situation of the heart, but the site of the left ventricle wherein the vitall spirits are laboured; and also the great Artery that conveyeth them out; both which are situated on the left; and upon this reason epithems or cordiall applications are justly applied unto the left brest; and the wounds under the fifth rib may be more suddenly destructive if made on the sinister side; and the spear of the souldier that pierced our Saviour, is not improperly described when Painters direct it a little towards the left.

The other ground is more particular and upon inspection; for in dead bodies especially lying upon the spine, the heart doth seem to incline unto the left. Which happeneth not from its proper site; but besides its sinistrous gravity, is drawn that way by the great artery, which then subsideth and haleth the heart unto it. And therefore strictly taken, the heart is seated in the middle of the chest; but after a carelesse and inconsiderate aspersion, or according to the readiest sense of pulsation, we shall not quarrell if any affirm it is seated toward the left. And in these considerations must Aristotle be salved, when he affirmeth the heart of man is placed in the left side; and thus in a popular acception may we receive the periphrasis of Persius, when he taketh the part under the left pap for the heart; and if rightly apprehended, it concerneth not this controversie, when it is said in Ecclesiastes; The heart of a wise man is in the right side, but that of a fool in the left; for thereby may be implied, that the heart of a wise man delighteth in the right way, or in the path of vertue, that of a fool in the left, or road of vice; according to the mystery of the letter of Pythagoras,

—Levâ in parte mamille.

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ras, or that expression in Jonah, concerning sixscore thousand, that could not discern between their right hand and their left, or knew not good from evil.

That assertion also that man proportionally hath the largest brain, I did I confesse somewhat doubt; and conceived it might have failed in birds, especially such as having little bodies, have yet large cranies, and seem to contain much brain, as Snipes, Woodcocks, &c. but upon triall I finde it very true. The brains of a man Archangelus and Bauhinus observe to weigh four pound, and sometime five and an half. If therefore a man weigh one hundred and fourty pounds, and his brain but five, his weight is 27. times as much as his brain, deducting the weight of that five pound which is allowed for it. Now in a Snipe which weighed four ounces two dragmes, I finde the brains to weigh but half a dragme; so that the weight of the body (allowing for the brain) exceeded the weight of the brain, sixty seven times and an half.

More controvertible it seemeth in the brains of Sparrows, whose cranies are rounder and so of larger capacity: and most of all in the heads of birds, upon the first formation in the egge, wherein the head seems larger then all the body, and the very eies almost as big as either. A Sparrow in the totall we found to weigh seven dragmes and four and twenty grains; whereof the head a dragme, but the brain not fifteen grains; which answereth not fully the proportion of the brain of man. And therefore it is to be taken of the whole head with the brains, when Scaliger objecteth that the head of a man is the fifteenth part of his body, that of a Sparrow, scarce the fift.

Histor. Animal.
lib. 1.

CHAP. III.

Of Pleurifies.

THAT Pleurifies are only on the left side, is a popular Tenent, not only absurd but dangerous. From the misapprehension hereof, men omitting the opportunity of remedies, which otherwise they would not neglect. Chiefly occasioned by the ignorance of Anatomy and the extent of the part affected; which in an exquisite Pleurisie is determined to be the skin or membrane which investeth the ribbes, for so it is defined, *Inflammatio membranae costarum succingentis*; An Inflammation, either simple consisting only of an hot and sanguineous affluxion; or else denominable from other humours, according to the predominancy of melancholy, flegme, or choler. The vessels whereby the morbigicall matter is derived unto this membrane, are either the ascending branches of the hollow veine, which disperse themselves into the four upper ribbs; or else the Azygos, or *vena sine pari*, whose furcles are disposed unto the other lower. The membrane thus inflamed, is properly called *Pleura*; from whence the disease hath its name; and this investeth not only one side, but overspreadeth the cavity of the chest, and affordeth a common coat unto the parts contained therein.

What a Pleurisie
is.

Now therefore the *Pleura* being common unto both sides, it is not reasonable to confine the inflammation unto one, nor strictly to determine it is alwaies in the side; but sometimes before and behinde, that is, inclining to the spine or brestbone, for thither this coat extendeth; and therefore with equall propriety we may affirm, that ulcers of the lungs, or Apostems of the brain

doe

doe happen only in the left side; or that Ruptures are confinable unto one side, whereas the peritoneum or rimme of the belly may be broke, or its perforations relaxed in either.

CHAP. IV.

Of the Ring-finger.

AN opinion there is, which magnifies the condition of the fourth finger of the left hand; presuming therein a cordiall relation, that a particular vessel, nerve, vein or artery is conferred thereto from the heart, and therefore that especially hath the honour to bear our rings. Which was not only the Christian practice in Nuptiall contracts, but observed by heathens, as Alexander *ab Alexandro*, Gellius, Macrobius and Pierius have delivered, as lately Levinus Lemnius hath confirmed, who affirms this peculiar vessell to be an artery, and not a nerve, as Antiquity hath conceived it; adding moreover that rings hereon peculiarly affect the heart; that in Lipothymies or swooundings he used the frication of this finger with saffron and gold; that the ancient Physitians mixed up their Medicines herewith; that this is seldom or last of all affected with the Gout, and when that becometh nodous, men continue not long after. Notwithstanding all which we remain unsatisfied, nor can we think the reasons alledged sufficiently establish the prehemineny of this finger.

For first, Concerning the practice of antiquity, the custome was not generall to wear their rings either on this hand or finger; for it is said, and that emphatically in Jeremiah, *Si fuerit Jeconias filius Joachim regis Jude annulus in manu dextrâ meâ, inde evellam eum*: Though Coniah the son of Joachim King of Judah were the signet on my right hand, yet would I pluck thee thence. So is it observed by Pliny that in the portraits of their Gods the rings were worn on the finger next the thumb; that the Romans wore them also upon their little finger, as Nero is described in Petronius: some wore them on the middle finger as the ancient Gaules and Britans, and some upon the forefinger, as is deduceable from Julius Pollux, who names that ring Corionos.

Again, That the practice of the Ancients had any such respect of cordiality or reference unto the heart, will much be doubted if we consider their rings were made of Iron; such was that of Prometheus who is conceived the first that brought them in use; so, as Pliny affirmeth, for many yeares the Senators of Rome did not wear any rings of Gold: but the slaves wore generally Iron rings untill their manumission or preferment to some dignity. That the Lacedemonians continued their Iron rings unto his daies, Pliny also delivereth; and surely they used few of Gold; for beside that Lycurgus prohibited that mettall, we reade in Athenæus, that having a desire to guild the face of Apollo, they enquired of the oracle where they might purchase so much gold; and were directed unto Cræsus King of Lydia.

Moreover whether the Ancients had any such intention, the grounds which they conceived in vein, nerve or artery, are not to be justified, nor will inspection confirm a peculiar vessell in this finger. For as Anatomy informeth, the Basilica vein dividing into two branches below the cubit, the outward sendeth two furcles unto the thumb, two unto the forefinger, and one

Rings anciently
of Iron.

Whence the
nerves proceed.

unto the middle finger in the inward side; the other branch of the Basilica fendeth one surcle unto the outside of the middle finger, two unto the Ring, and as many unto the little fingers; so that they all proceed from the Basilica, and are in equall numbers derived unto every one. In the same manner are the branches of the axillary artery distributed into the hand; for below the cubit it divideth into two parts, the one running along the Radius, and passing by the wrest or place of the pulse, is at the fingers subdivided into three branches; whereof the first conveyeth two surcles unto the thumb, the second as many to the fore finger, and the third one unto the middle finger; the other or lower division of the artery descendeth by the ulna, and furnisheth the other fingers; that is the middle with one surcle, and the ring and little fingers with two. As for the nerves, they are disposed much after the same manner, and have their originall from the brain, and not the heart, as many of the Ancients conceived; which is so farre from affording nerves unto other parts, that it receiveth very few it self from the sixth conjugation, or pair of nerves in the brain.

Lastly, These propagations being communicated unto both hands, we have no greater reason to wear our rings on the left, then on the right, nor are there cordiall considerations in the one, more then the other. And therefore when Forestus for the stanching of blood makes use of Medicall applications unto the fourth finger, he confines not that practice unto the left, but varieth the side according to the nostrill bleeding. So in fevers, where the heart primarily suffereth, we apply medicines unto the wrists of either arme; so we touch the pulse of both, and judge of the affections of the heart by the one as well as the other. And although in indispositions of liver or spleen, considerations are made in Phlebotomy respectively to their situation; yet when the heart is affected, men have thought it as effectually to bleed on the right as the left; and although also it may be thought, a nearer respect is to be had of the left, because the great artery proceeds from the left ventricle, and so is nearer that arme; it admits not that consideration. For under the channell bones the artery divideth into two great branches, from which trunk or point of division the distance unto either hand is equall, and the consideration answerable.

And therefore Macrobius discussing the point, hath alleadged another reason, affirming that the gestation of rings upon this hand and finger, might rather be used for their conveniency and preservation, then any cordiall relation. For at first (saith he) it was both free and usuall to wear rings on either hand; but after that luxury encreased, when pretious gems and rich insculptures were added, the custome of wearing them on the right hand was translated unto the left; for that hand being lesse employed, thereby they were best preserved. And for the same reason they placed them on this finger; for the thumb was too active a finger, and is commonly imploied with either of the rest: the Index or fore finger was too naked whereto to commit their pretiosities, and hath the tuition of the thumb scarce unto the second joint: the middle and little finger they rejected as extreame, and too big or too little for their rings, and of all chose out the fourth, as being least used of any, as being guarded on either side, and having in most this peculiar condition that it cannot be extended alone and by it self, but will be accompanied by some finger on either side. And to this opinion assenteth Alexander *ab Alexandro, Annulum nuptialem prior etas in sinistra ferebat, crediderim ne attereretur.*

Now that which begat or promoted the common opinion, was the common conceit that the heart was seated on the left side; but how farre this

is

is verified, we have before declared. The Egyptian practice hath much advanced the same, who unto this finger derived a nerve from the heart, and therefore the Priest anointed the same with pretious oyles before the altar. But how weak Anatomists they were, which were so good Embalmers, we have already shewed. And though this reason took most place, yet had they another which more commended that practice; and that was the number whereof this finger was an Hieroglyphick. For by holding down the fourth finger of the left hand, while the rest were extended, they signified the perfect and magnified number of six. For as Pierius hath graphically declared, Antiquity expressed numbers by the fingers of either hand; on the left they accounted their digits and articulate numbers unto an hundred, on the right hand hundreds and thousands; the depressing this finger which in the left hand implied but six, in the right indigitated six hundred. In this way of numeration may we construe that of Juvenal concerning Nestor,

— *Qui per tot secula mortem
Distulit, atq; suos jam dextrâ computat annos.*

And however it were intended, in this sense it will be very elegant what is delivered of Wisdom, Prov. 3. Length of daies is in her right hand, and in her left hand riches and honour.

As for the observation of Lemnius an eminent Physitian, concerning the gowt, however it happened in his country, we may observe it otherwise in ours; that is, that chiragrical persons doe suffer in this finger as well as in the rest, and sometimes first of all, and sometimes no where else. And for the mixing up medicines herewith, it is rather an argument of opinion, then any considerable effect; and we as highly conceive of the practice in Diapalma, that is in the making of that plaister, to stirre it with the stick of a Palme.

Hand-gowty
persons.

CHAP. V.

Of the right and left Hand.

IT is also suspicious, and not with that certainty to be received, what is generally beleaved concerning the right and left hand, that men naturally make use of the right; and that the use of the other is a digression or aberration from that way which nature generally intendeth. And truly we doe not deny that almost all Nations have used this hand, and ascribed a preheminance thereto: hereof a remarkable passage there is in the 48. of Genesis; And Joseph took them both, Ephraim in his right hand towards Israels left hand, and Manasses in his left hand towards Israels right hand, and Israel stretched out his right hand and laid it upon Ephraims head; who was the younger, and his left hand upon Manasses head, guiding his hands wittingly, for Manasses was the first-born; and when Joseph saw that his father laid his right hand upon the head of Ephraim, it displeased him, and he held up his fathers hand to remove it from Ephraims head unto Manasses head, and Joseph said, Not so my father, for this is the first-born, put thy right hand upon his head: The like appeareth from the ordinance of Moses in the consecration of their Priests, Then shalt thou kill the Ram, and rake of his blood, and put it upon the tip of the right eare of Aaron, and upon the tip of the right eare of his sonnes, and upon the thumb of the right hand, and upon

upon the great toe of the right foot, and sprinkle the bloud on the Altar round about: That the Persians were wont herewith to plight their faith, is testified by Diodorus: That the Greeks and Romans made use hereof, beside the testimony of divers Authors, is evident from their custom of discumbency at their meales, which was upon their left side, for so their right hand was free, and ready for all service. Nor was this only in use with divers Nations of men, but was the custome of whole Nations of women, as is deduceable from the Amazones in the amputation of their right breast, whereby they had the freer use of their bow. All which doe seem to declare a naturall preferment of the one unto motion before the other; wherein notwithstanding in submission to future information, we are unsatisfied unto great dubitation.

For first, If there were a determinate prepotency in the right, and such as ariseth from a constant root in nature, we might expect the same in other animals, whose parts are also differenced by dextrality; wherein notwithstanding we cannot discover a distinct and complying account; for we finde not that Horses, Bulls or Mules, are generally stronger on this side. As for animals whose forelegs more sensibly supply the use of armes, they hold, if not an equality in both, a prevalency oft times in the other, as Squirrels, Apes, and Monkeys; the same is also discernible in Parrets; and men observe that the eye of a Tumbler is biggest, not constantly in one, but in the bearing side.

That there is also in men a naturall prepotency in the right, we cannot with constancy affirm, if we make observation in children; who permitted the freedome of both, doe oft times confine unto the left, and are not without great difficulty restrained from it. And therefore this prevalency is either uncertainly placed in the laterality, or custome determines its indifferency. Which is the resolution of Aristotle in that Probleme, which enquires why the right side being better then the left, is equall in the senses? because, saith he, the right and left doe differ by use and custome, which have no place in the senses. For right and left as parts inservient unto the motive faculty, are differenced by degrees from use and assuefaction, according whereto the one grows stronger, and oft times bigger then the other. But in the senses it is otherwise; for they acquire not their perfection by use or custome, but at the first we equally hear and see with one eye, as well as with another. And therefore, were this indifferency permitted, or did not institution, but Nature determine dextrality, there would be many more Scevolaes then are delivered in story; nor needed we to draw examples of the left, from the sonnes of the right hand; as we reade of seven thousand in the Army of the Benjamites. True it is, that although there be an indifferency in either, or a prevalency indifferent in one, yet is it most reasonable for uniformity, and sundry respective uses, that men should apply themselves to the constant use of one; for there will otherwise arise anomalous disturbances in manuell actions, not only in civil and artificall, but also in Military affairs, and the severall actions of warre.

Secondly, The grounds and reasons alleadged for the right, are not satisfactory, and afford no rest in their decision. Scaliger finding a defect in the reason of Aristotle, introduceth one of no lesse deficiency himself; *Ratio materialis* (saith he) *sanguinis crassitudo simul & multitudo*, that is, the reason of the vigour of this side, is the crassitude and plenty of bloud; but this is no way sufficient; for the crassitude or thicknesse of bloud, affordeth no reason why one arme should be enabled before the other, and the plenty thereof, why both not enabled equally. Fallopius is of another conceit, deducing

Whence the dextrall activity in men proceeds.

Benjamin filius dextrae.

deducing the reason from the Azygos or *vena sine pari*, a large and considerable veine arising out of the *cava* or hallow veine, before it enters the right ventricle of the heart, and placed only in the right side. But neither is this perswasory; for the Azygos communicates no branches unto the armes or legs on either side, but dispersth into the ribs on both, and in its descent doth furnish the left Emulgent with one veine, and the first veine of the loines on the right side with another; which manner of derivation doth not conferre a peculiar addition unto either. *Calius Rodiginus* undertaking to give a reason of Ambidexters and left-handed men, delivereth a third opinion: Men, saith he, are Ambidexters, and use both hands alike, when the heat of the heart doth plentifully disperse into the left side, and that of the Liver into the right, and the spleen be also much dilated; but men are left-handed when ever it happeneth that the heart and Liver are seated on the left side, or when the Liver is on the right side; yet so obducted and covered with thick skins, that it cannot diffuse its vertue into the right. Which reasons are no way satisfactory; for herein the spleen is unjustly introduced to invigorate the sinister side, which being dilated it would rather infirm and debilitate. As for any tunicles or skins which should hinder the Liver from enabling the dextrall parts; we must not conceive it diffuseth its vertue by meer irradiation, but by its veines and proper vessels, which common skins and teguments cannot impede. And for the seat of the heart and Liver in one side whereby men become left-handed, it happeneth too rarely to countenance an effect so common; for the seat of the Liver on the left side is very monstrous, and scarce at all to be met with in the observations of Physitians. Others not considering ambidextrous and left handed men, doe totally submit unto the efficacy of the Liver; which though seated on the right side, yet by the subclavian division doth equidistantly communicate its activity unto either arme; nor will it salve the doubts of observation; for many are right-handed whose Livers are weakly constituted, and many use the left, in whom that part is strongest; and we observe in Apes and other animals, whose Liver is in the right, no regular prevalence therein.

And therefore the brain, especially the spinall marrow, which is but the brain prolonged, hath a fairer plea hereto; for these are the principles of motion, wherein dextrality consists; and are divided within and without the Cranny. By which division transmitting nerves respectively unto either side; according to the indifferency, or originall and native prepotency, there ariseth an equality in both, or prevalency in either side. And so may it be made out, what many may wonder at, why some most actively use the contrary arme and leg; for the vigour of the one dependeth upon the upper part of the spine; but the other upon the lower.

And therefore many things are Philosophically delivered concerning right and left, which admit of some suspension. That a woman upon a masculine conception advanceth her right leg, will not be found to answer strict observation; That males are conceived in the right side of the womb, females in the left, though generally delivered, and supported by ancient testimony, will make no infallible account; it happening oft times that males and females doe lie upon both sides, and Hermaphrodites for ought we know on either. It is also suspicious what is delivered concerning the right and left testicle, that males are begotten from the one, and females from the other. For though the left seminall veine proceedeth from the Emulgent, and is therefore conceived to carry down a serous and feminine matter; yet the seminall Arteries which send forth the active materials, are both

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*M. rnia carnosia.*How an Horse or
Bull may generate
after they be gctd.

derived from the great Artery. Beside, this originall of the left veine was thus contrived, to avoid the pulsation of the great Artery, over which it must have passed to attain unto the testicle. Nor can we easily inferre such different effects from the divers situation of parts which have one end and office; for in the kidneys which have one office, the right is seated lower then the left, whereby it lieth free, and giveth way unto the Liver; and therefore also that way which is delivered for masculine generation, to make a strait ligature about the left testicle, thereby to intercept the evacuation of that part, deserveth consideration. For one sufficeth unto generation, as hath been observed in semicastration, and oft times in carnosus ruptures. Beside, the seminall ejaculation proceeds not immediatly from the testicle, but from the spermatick glandules; and therefore Aristotle affirms (and reason cannot deny) that although there be nothing diffused from the testicles, an Horse or Bull may generate after castration; that is, from the stock and remainder of seminall matter, already prepared and stored up in the Prostates or glandules of generation.

Thirdly, Although we should concede a right and left in Nature, yet in this common and received account we may erre from the proper acception; mistaking one side for another; calling that in man and other animals the right which is the left, and that the left which is the right, and that in some things right and left, which is not properly either.

For first the right and left, are not defined by Philosophers according to common acception, that is, respectively from one man unto another, or any constant site in each; as though that should be the right in one, which upon confront or facing stands athwart or diagonally unto the other; but were distinguished according to the activity and predominant locomotion upon either side. Thus Aristotle in his excellent Tract *de incessu animalium*, ascribeth six positions unto animals, answering the three dimensions; which he determineth not by site or position unto the heavens, but by their faculties and functions; and these are *Imum summum*, *Ante Retro*, *Dextra & Sinistra*: that is the superiour part, where the aliment is received, that the lower extreame, where it is last expelled; so he termeth a man a plant inverted; for he supposeth the root of a tree the head or upper part thereof, whereby it receiveth its aliment, although therewith it respects the Center of the earth, but with the other the Zenith; and this position is answerable unto longitude. Those parts are anterior and measure profundity, where the senses, especially the eies are placed, and those posterior which are opposite hereunto. The dextrous and sinistrous parts of the body make up the latitude; and are not certain and inalterable like the other; for that, saith he, is the right side, from whence the motion of the body beginneth, that is, the active or moving side; but that the sinister which is the weaker or more quiescent part. Of the same determination were the Platonicks and Pythagorians before him; who conceiving the heavens an animated body, named the East the right or dextrous part, from whence began their motion: and thus the Greeks from whence the Latines have borrowed their appellation, have named this hand *Ægia*, denominating it not from the site, but office, from *Ægiæ capio*, that is, the hand which receiveth, or is usually implied in that action.

Now upon these grounds we are most commonly mistaken, defining that by situation which they determined by motion; and giving the term of right hand to that which doth not properly admit it. For first, Many in their infancy are sinistrously disposed, and divers continue all their life *Ægiæ*, that is, left handed, and have but weak and imperfect use of the right; now unto these

these that hand is properly the right, and not the other esteemed so by situation. Thus may Aristotle be made out, when he affirmeth the right claw of Crabs and Lobsters is biggest, if we take the right for the most vigorous side, and not regard the relative situation; for the one is generally bigger then the other, yet not alwaies upon the same side. So may it be verified what is delivered by Scaliger in his Comment, that Palsies doe oftnest happen upon the left side, if understood in this sense; the most vigorous part protecting it self, and protruding the matter upon the weaker and lesse resistive side. And thus the Law of Common-Weales; that cut off the right hand of Makefactors, if Philosophically executed, is impartiall; otherwise the amputation not equally punisheth all.

Some are *Amphidexteri*, that is, ambidexterous or right-handed on both sides; which happeneth only unto strong and Athletickall bodies, whose heat and spirits are able to afford an ability unto both. And therefore Hippocrates saith, that women are not ambidexterous, that is, not so often as men; for some are found, which indifferently make use of both. And so may Aristotle say, that only man ambidexter; of this constitution was Asteropæus in Homer, and Parthenopeus the Theban Captain in Statius; and of the same doe some conceive our Father Adam to have been, as being perfectly framed, and in a constitution admitting least defect. Now in these men the right hand is on both sides, and that is not the left which is opposite unto the right according to common acception.

Again, Some are *Amphilevi* as Galen hath expressed: that is, Ambilevous or left-handed on both sides; such as with agility and vigour have not the use of either; who are not gymnastically composed; nor actively use those parts. Now in these there is no right hand: of this constitution are many women, and some men; who though they accustome themselves unto either hand, doe dexterously make use of neither. And therefore although the Politicall advice of Aristotle be very good, that men should accustome themselves to the command of either hand; yet cannot the execution or performance thereof be generall; for though there be many found that can use both, yet will there divers remain that can strenuously make use of neither.

Lastly, These lateralities in man are not only fallible, if relatively determined unto each other, but made in reference unto the heavens and quarters of the Globe: for those parts are not capable of these conditions in themselves, nor with any certainty respectively derived from us, nor from them to us again. And first in regard of their proper nature, the heavens admit not these sinister and dexter respects; there being in them no diversity or difference, but a simplicity of parts, and equiformity in motion continually succeeding each other; so that from what point soever we compute, the account will be common unto the whole circularity. And therefore though it be plausible, it is not of consequence hereto what is delivered by Solinus, That man was therefore a Microcosme or little world, because the dimensions of his positions were answerable unto the greater. For as in the heavens the distance of the North and Southern pole, which are esteemed the superiour and inferiour points, is equall unto the space between the East and West, accounted the dextrous and sinister parts thereof; so is it also in man: for the extent of his fathome or distance betwixt the extremity of the fingers of either hand upon expansion, is equall unto the space between the sole of the foot and the crown. But this doth but petionarily inferre a dextrality in the heavens, and we may as reasonably conclude a right and left laterality in the Ark or navall edifice of Noah. For the length thereof was

Apt for contention.

Strongly or fit for corporal exercise.

See a full Discourse of this fol. 266.

Declarable
from the ori-
ginall expressi-
on, Psal. 89. 13.

thirty cubits, the breadth fifty, and the height or profundity thirty; which well agreeth unto the proportion of man; whose length, that is a perpendicular from the vertex unto the sole of the foot is sextuple unto his breadth, or a right line drawn from the ribs of one side to another; and decuple unto his profundity; that is, a direct line between the breast bone and the spine.

Again, They receive not these conditions with any assurance or stability from our selves. For the relative foundations and points of denomination, are not fixed and certain, but variously designed according to imagination. The Philosopher accounts that East from whence the heavens begin their motion. The Astronomer regarding the South and Meridian Sun, calls that the dextrous part of heaven which respecteth his right hand; and that is the West. Poets respecting the West assign the name of right unto the North, which regardeth their right hand; and so must that of Ovid be explained, *utq; dux dextrâ zone totidemq; sinistrâ*. But Augurs or Southsayers turning their face to the East, did make the right in the South; which was also observed by the Hebrews and Chaldeans. Now if we name the quarters of heaven respectively unto our sides, it will be no certain or invariable denomination. For if we call that the right side of heaven which is seated Easterly unto us, when we regard the Meridian Sun; the inhabitants beyond the Æquator and Southern Tropic when they face us regarding the Meridian, will contrarily define it; for unto them, the opposite part of heaven will respect the left, and the Sun arise to their right.

And thus have we at large declared that although the right be most commonly used, yet hath it no regular or certain root in nature. Since it is not confirmable from other animals: Since in children it seems either indifferent or more favourable in the other; but more reasonable for uniformity in action that men accustom unto one: Since the grounds and reasons urged for it do no way support it: Since if there be a right and stronger side in nature, yet may we mistake in its denomination; calling that the right which is the left, and the left which is the right. Since some have one right, some both, some neither. And lastly, Since these affections in man are not only fallible in relation unto one another, but made also in reference unto the heavens; they being not capable of these conditions in themselves, nor with any certainty from us, nor we from them again.

And therefore what admission we owe unto many conceptions concerning right and left requireth circumspection. That is, how farre we ought to relye upon the remedy in Kiranides, that is, the left eye of an Hedgehog fried in oyle to procure sleep, and the right foot of a frog in a Deers skin for the gowt; or that to dream of the losse of right or left tooth presageth the death of male or female kindred, according to the doctrine of Artemidorus. What verity there is in that numerall conceit in the laterall division of man by even and odde, ascribing the odde unto the right side, and even unto the left; and so by parity or imparity of letters in mens names to determine misfortunes on either side of their bodies; by which account in Greek numeration Hephæstus or Vulcan was lame in the right foot, and Anibal lost his right eye. And lastly, what substance there is in that Auspiciall principle, and fundamentall doctrine of Ariolation, that the left hand is ominous, and that good things doe passe sinistrously upon us; because the left hand of man respected the right hand of the Gods, which handed their favours unto us.

CHAP.

The Recapitulation of
Arguments

CHAP. VI.

Of Swimming.

THAT men swim naturally, if not disturbed by fear; that men being drowned and sunk, do float the ninth day when their gall breaketh; that women drowned swim prone, but men supine, or upon their backs; are popular affirmations, whereto we cannot assent. And first, that man should swim naturally, because we observe it is no lesson unto others, we cannot well conclude; for other animals swim in the same manner as they goe, and need no other way of motion for natation in the water, then for progression upon the land. And this is true whether they move *per latera*, that is, two legs of one side together, which is Tollutation or ambling; or *per diametrum*, lifting one foot before, and the crosse foot behinde, which is succussion or trotting; or whether *per frontem* or *quadratum*, as Scaliger termes it, upon a square base, the legs of both sides moving together, as Frogs and salient animals, which is properly called leaping. For by these motions they are able to support and impell themselves in the water, without alteration in the stroak of their legs, or position of their bodies.

85.

But with man it is performed otherwise: for in regard of site he alters his naturall posture and swimmeth prone, whereas he walketh erect. Again, in progression the arms move parallell to the legs, and the arms and legges unto each other; but innatation they intersect and make all sorts of Angles. And lastly, in progressive motion, the arms and legges do move successively, but in natation both together; all which aptly to perform, and so as to support and advance the body, is a point of art, and such as some in their young and docile years could never attain. But although it be acquired by art, yet is there somewhat more of nature in it then we observe in other habies, nor will it strictly fall under that definition; for once obtained it is not to be removed; nor is there any who from disuse did ever yet forget it.

Secondly, That persons drowned arise and float the ninth day when their gall breaketh, is a questionable determination both in the time and cause. For the time of floating, it is uncertain according to the time of putrefaction, which shall retard or accelerate according to the subject and season of the year, for as we observed cats and mice will arise unequally and at different times, though drowned at the same. Such as are fat do commonly float soonest, for their bodies soonest ferment, and that substance approacheth nearest unto air: and this is one of Aristotles reasons why dead Eeles will not float, because saith he, they have but slender bellies, and little fat.

As for the cause, it is not so reasonably imputed unto the breaking of the gall as the putrefaction of the body, whereby the unnaturall heat prevailing, the putrifying parts doe suffer a turgescence and inflation, and becoming aery and spumous affect to approach the ayr, and ascend unto the surface of the water. And this is also evidenced in egges, whereof the sound ones sink, and such as are addled swim, as doe also those which are termed hypenemia or winde-egges; and this is also a way to separate seeds, whereof such as are corrupted and sterill, swim; and this agreeth not only unto the seed of plants lockt up and capslated in their husks, but also unto the sperm and seminall humour of man; for such a passage hath Aristotle upon the Inquisition and test of its fertility.

Why drowned
bodies float after
a time.

See another way 38

That the breaking of the gall is not the cause hereof experience hath informed us. For opening the *abdomen*, and taking out the gall in cats and mice, they did notwithstanding arise: and because we had read in Rhodiginus of a Tyrant, who to prevent the emergencie of murdered bodies did use to cut off their lungs, and found mens mindes possessed with this reason; we committed some unto the water without lungs, which notwithstanding floated with the others. And to compleat the experiment, although we took out the guts and bladder, and also perforated the Cranium, yet would they arise, though in a longer time. From these observations in other animals, it may not be unreasonable to conclude the same in man, who is too noble a subject on whom to make them expressly, and the casuall opportunity too rare almost to make any. Now if any shall ground this effect from gall or choler, because it is the [#]highest humour and will be above the rest; or being the fiery humour will readiest surmount the water, we must confesse in the common putrescence it may promote elevation, which the breaking of the bladder of gall, so small a part in man, cannot considerably advantage.

fig 4288.

Lastly, That women drowned float prone, that is with their bellies downward; but inen supine or upward, is an assertion wherein the *hori* or point it self is dubious; and were it true, the reason alledged for it is of no validity. The reason yet currant was first expressed by Pliny, *veluti pudori defunctorum parcente natura*, nature modestly ordaining this position to conceal the shame of the dead; which hath been taken up by Solinus, Rhodiginus, and many more. This indeed (as Scaliger termeth it) is *ratio civilis non philosophica*, strong enough for morality or Rhetoricks, not for Philosophy or Physicks: for first, in nature the concealment of secret parts is the same in both sexes, and the shame of their reveal equall: so Adam upon the taste of the fruit was ashamed of his nakednesse as well as Eve: and so likewise in America and countries unacquainted with habits, where modesty conceals these parts in one sex, it doth it also in the other; and therefore had this been the intention of nature, not only women but men also had swummed downwards; the posture in reason being common unto both where the intent is also common.

Again, While herein we commend the modesty, we condemn the wisdom of nature: for that prone position we make her contrive unto the woman, were best agreeable unto the man, in whom the secret parts are very anterior and more discoverable in a supine and upward posture. And therefore Scaliger declining this reason hath recurred unto another from the difference of parts in both sexes; *Quod ventre vasto sunt mulieres plenasque intestinis, itaque minus impletur & subsidet, inanior maribus quibus nates preponderant*: If so, then men with great bellies will float downward, and only Callipyga and women largely composed behinde, upward. But Anatomists observe that to make the larger cavity for the Infant, the hanch bones in women, and consequently the parts appendant are more protuberant then they are in men. They who ascribe the cause unto the breasts of women, take not away the doubt; for they resolve not why children float downward who are included in that sex, though not in the reason alledged. But hereof we cease to discourse, lest we undertake to afford a reason of the * golden tooth, that is, to invent or assign a cause, when we remain unsatisfied or unfured of the effect.

* Of the cause whereof much dispute was made, and at last proved an imposture.

That a Mare will sooner drown then an Horse, though commonly opinion'd, is not I fear experienced: nor is the same observed, in the drowning of whelps and kitlins. But that a man cannot shut or open his eyes under water, easie experiment

experiment may convict. Whether Cripples and mutilated persons, who have lost the greatest part of their thighs, will not sink but float, their lungs being able to waft up their bodies, which are in others overpoised by the hinder legges; we have not made experiment. Thus much we observe, that animals drown downwards, and the same is observeable in Frogges, when the hinder legges are cut off. But in the air most seem to perish headlong from high places, however Vulcan thrown from heaven, be made to fall on his feet.

*See frontispiece to
his Religio Medici.*

CHAP. VII.

Concerning Weight.

THat men weigh heavier dead then alive, if experiment hath not failed us, we cannot reasonably grant. For though the triall hereof cannot so well be made on the body of Man, nor will the difference be sensible in the abate of scruples or dragmes, yet can we not confirm the same in lesser animalls from whence the inference is good; and the affirmative of Pliny saith that it is true in all: for exactly weighing and strangling a Chicken in the Scales; upon an immediate ponderation, we could discover no sensible difference in weight; but suffering it to lie eight or ten howres, untill it grew perfectly cold, it weighed most sensibly lighter; the like we attempted, and verified in Mice, and performed their trials in Scales that would turn upon the eighth or tenth part of a grain.

Now whereas some alledge that spirits are light substances, and naturally ascending doe elevate and waft the body upward, whereof dead bodies being destitute contract a greater gravity; although we concede that spirits are light, comparatively unto the body, yet that they are absolutely so, or have no weight at all, we cannot readily allow. For since Philosophy affirmeth that spirits are middle substances between the soul and body, they must admit of some corporiety which supposeth weight or gravity. Beside, in carcasses warme and bodies newly disanimated, while transpiration remaineth, there doe exhale and breathe out vaporous and fluid parts, which carry away some power of gravitation. Which though we allow, we doe not make answerable unto living expiration; and therefore the Chicken or Mice were not so light being dead, as they would have been after ten houres kept alive; for in that space a man abateth many ounces. Nor if it had slept, for in that space of sleep, a man will sometimes abate fourty ounces; nor if it had been in the middle of summer, for then a man weigheth some pounds lesse then in the height of winter; according to experience, and the statick aphorismes of Sanctorius.

Again, Whereas men affirm they perceive an addition of ponderosity in dead bodies, comparing them usually unto blocks and stones, whensoever they lift or carry them; this accessionall preponderancy is rather in appearance then reality. For being destitute of any motion, they conferre no relief unto the Agents or Elevators; which makes us meet with the same complaints of gravity in animated and living bodies, where the nerves subside, and the faculty locomotive seems abolished; as may be observed in the lifting or supporting of persons inebriated, Apoplecticall, or in Lipothymies and swoundings.

Many are also of opinion, and some learned men maintain, that men are lighter

lighter after meales then before, and that by a supply and addition of spirits obscuring the grosse ponderosity of the aliment ingested; but the contrary hereof we have found in the triall of sundry persons in different sex and ages. And we conceive men may mistake if they distinguish not the sense of levity unto themselves, and in regard of the scale or decision of trutination. For after a draught of wine a man may seem lighter in himself from sudden refection, although he be heavier in the balance, from a corporall and ponderous addition; but a man in the morning is lighter in the scale, because in sleep some pounds have perspired; and is also lighter unto himself, because he is relected.

And to speak strictly, a man that holds his breath is weightier while his lungs are full, then upon expiration. For a bladder blown is weightier then one empty, and if it contain a quart, expressed and emptied it will abate about half a grain; and we somewhat mistrust the experiment of a pumice-stone taken up by Montanus, in his Comment upon Avicenna, where declaring how the rarity of parts, and numerosity of pores, occasioneth a lightnesse in bodies, he affirms that a pumice-stone powdered, is lighter then one entire; which is an experiment beyond our satisfaction; for beside that abatement can hardly be avoided in the Trituration; if a bladder of good capacity will scarce include a grain of air, a pumice of three or four dragmes, cannot be presumed to contain the hundred part thereof; which will not be sensible upon the exactest beames we use. Nor is it to be taken strictly what is delivered by the learned Lord Verulam, and referred unto further experiment; That a dissolution of Iron in *Aqua fortis*, will bear as good weight as their bodies did before, notwithstanding a great deale of waste by a thick vapour that issueth during the working; for we cannot finde it to hold neither in Iron nor Copper, which is dissolved with lesse ebullition; and hereof we made triall in Scales of good exactnesse; wherein if there be a defect, or such as will not turn upon quarter graines, there may be frequent mistakes in experiments of this nature. But stranger is that, and by the favourable way of triall we cannot make out what is delivered by *Hamernus Poppius*, that Antimony calcin'd or reduced to ashes by a burning glasse, although it emit a grosse and ponderous exhalation, doth rather exceed then abate its former gravity. Nevertheless, strange it is, how very little and almost insensible abatement, there will be sometimes in such operations, or rather some encrease, as in the refining of metals, in the test of bone ashes, according to experience; and in a burnt brick, as Monsieur de Clave affirmeth. Mistake may be made in this way of triall, when the Antimony is not weighed immediately upon the calcination; but permitted the air, it imbibeth the humidity thereof, and so repaireth its gravity.

Basilica Antimonij.

Des Pierres.

CHAP. VIII.

Of the passage of Meat and Drink.

THat there are different passages for Meat and Drink, the Meat or dry aliment descending by the one, the Drink or moistning vehicle by the other, is a popular Tenent in our daies, but was the assertion of learned men of old; for the same was affirmed by Plato, maintained by Eustathius in Macrobius, and is deducible from Eratosthenes, Eupolis and Euripides. Now herein men contradict experience, not well understanding Anatomy, and the use of parts.

For

For at the throat there are two cavities or conducting parts; the one the Oesophagus or gullet, seated next the spine, a part officiall unto nutrition, and whereby the aliment both wet and dry is conveyed unto the stomack; the other (by which 'tis conceived the Drink doth passe) is the weazon, rough artery, or winde-pipe, a part inservient to voice and respiration; for thereby the air descendeth into the lungs, and is communicated unto the heart. And therefore all animals that breath or have lungs, have also the weazon; but many have the gullet or feeding channell, which have no lungs or winde-pipe; as fishes which have gills, whereby the heart is refrigerated; for such thereof as have lungs and respiration, are not without the weazon, as Whales and cetaceous animals.

Again, Beside these parts destin'd to divers offices, there is a peculiar provision for the winde-pipe, that is, a cartilagineous flap upon the opening of the Larinx or throttle, which hath an open cavity for the admission of the air; but lest thereby either meat or drink should descend, Providence hath placed the *Epiglottis*, *Ligula*, or flap like an Ivy leaf, which alwaies closeth when we swallow, or when the meat and drink passeth over it into the gullet. Which part although all have not that breathe, as all cetaceous and oviparous animals, yet is the weazon secured some other way; and therefore in Whales that breathe, lest the water should get into the lungs, an ejection thereof is contrived by a Fistula or spout at the head. And therefore also though birds have no *Epiglottis*, yet can they so contract the rime or chink of their Larinx, as to prevent the admission of wet or dry ingested; either whereof getting in occasioneth a cough, untill it be ejected. And this is the reason why a man cannot drink and breathe at the same time; why if we laugh while we drink, the drink flies out at the nostrils; why when the water enters the weazon, men are suddenly drowned; and thus must it be understood, when we reade of one that died by the seed of a Grape, and another by an hair in milk.

Why a man cannot drink and breathe at once.

Anacreon the Poet, if the story be taken literally.

Now if any shall still affirm, that some truth there is in the assertion, upon the experiment of Hippocrates, who killing an Hog after a red potion, found the tincture thereof in the Larinx; if any will urge the same from medical practice, because in affections both of Lungs and weazon, Physitians make use of syrups, and lambitive medicines; we are not averse to acknowledge, that some may distill and insinuate into the winde-pipe, and medicines may creep down, as well as the rheume before them; yet to conclude from hence, that air and water have both one common passage, were to state the question upon the weaker side of the distinction, and from a partiaall or guttulous irrigation, to conclude a totall descension.

CHAP. IX.

Of Sneezing.

Concerning Sternutation or Sneezing, and the custome of saluting or blessing upon that motion, it is pretended, and generally beleev'd to derive its originall from a disease, wherein Sternutation proved mortall, and such as Sneezed died. And this may seem to be proved from Carolus Sigonius, who in his History of Italy, makes mention of a Pestilence in the time of Gregory the Great, that proved pernicious and deadly to those that Sneezed. Which notwithstanding will not sufficiently determine the grounds hereof: that custome having an elder *Æra*, then this Chronology affordeth.

A a

For

A Collection
of Greek Epi-
grams. Titulo
ἐῖς ὤψεσθαι.

De rebus Abas-
siorum.

Whence Sternu-
tation or Snee-
zing proceeds.

Problem Sect.
33.

In what cases a
sign of good,

2 King. 4. 35.

in what of bad.

For although the age of Gregory extend above a thousand, yet is this custome mentioned by Apuleius in the fable of the Fullers wife, who lived three hundred years before; by Pliny in that Probleme of his, *Cur Sternutantes saluantur*; and there are also reports that Tiberius the Emperour otherwise a very sowre man, would perform this rite most punctually unto others, and expect the same from others, unto himself; Petronius Arbiter, who lived before them both, and was Proconsul of Bythinia in the reign of Nero, hath mentioned it in these words; *Gyton collectione spiritus plenus, ter continuo ita sternutavit ut grabatum concuteret, ad quem motum Eumolpus conversus, Salvere Gytona jubet.* Cælius Rhodiginus hath an example hereof among the Greeks, far antienter then these, that is, in the time of Cyrus the younger; when consulting about their retreat, it chanced that one among them Sneeze; at the noise whereof, the rest of the souldiers called upon Jupiter Soter. There is also in the Greek Anthology a remarkable mention hereof, in an Epigram upon one Proclus; the Latine whereof we shall deliver, as we finde it often translated.

Non potis est Proclus digitis emungere nasum,

Namq; est pro nasi mole pusilla manus:

Non vocat ille Jovem sternutans, quippe nec audit

Sternutamentum, tam procul aure sonat.

Proclus with's hand his nose can never wipe,

His hand too little is his nose to gripe;

He Sneezing calls not Jove, for why? he hears

Himself not Sneeze, the sound's so far from's ears:

Nor was this only an ancient custome among the Greeks and Romans, and is still in force with us; but is received at this day in remotest parts of Africa. For so we reade in Codignus; that upon a Sneeze of the Emperour of Monomotapa, there passed acclamations successively through the city.

Now the ground of this ancient custome was probably the opinion the ancients held of Sternutation which they generally conceived to be a good sign or a bad, and so upon this motion accordingly used, a Salve or Ζεῦ σῶσον, as a gratulation for the one, and a deprecation from the other. Now of the waies whereby they enquired and determined its signality; the first was naturall, arising from Physicall causes and consequences often times naturally succeeding this motion; and so it might be justly esteemed a good signe. For Sneezing being properly a motion of the brain, suddenly expelling through the nostrils what is offensive unto it, it cannot but afford some evidence of its vigour; and therefore saith Aristotle, they that hear it, ἀποδοκιμασθαι ὡς ἱερόν, honour it as somewhat Sacred, and a signe of Sanity in the diviner part; and this he illustrates from the practice of Physitians, who in persons near death doe use Sternutatories, or such medicines as provoke unto Sneezing; when if the faculty arise and Sternutation ensueth, they conceive hopes of life, and with gratulation receive the signes of safety. And so is it also of good signality, according to that of Hippocrates, that Sneezing cureth the hickett, and is profitable unto women in hard labour; and so is it good in Lethargies, Apoplexies, Catalepsies and Coma's. And in this naturall way it is sometime likewise of bad effects or signes, and may give hints of deprecation; as in diseases of the chest; for therein Hippocrates condemneth it as too much exagitating; in the beginning of Catarrhs according unto Avicenna as hindering concoction; in new and tender conceptions (as Pliny observeth) for then it endangers abortion.

The second way was superstitious and Augurial, as Cælius Rhodiginus hath illustrated in testimonies, as ancient as Theocritus and Homer; as ap-
pears

pears from the Athenian master, who would have retired, because a boatman Sneezed; and the testimony of Austine, that the Ancients were wont to go to bed again if they Sneezed while they put on their shooe. And in this way it was also of good and bad signification; so Aristotle hath a Probleme, why Sneezing from noon unto midnight was good, but from night to noon unlucky? So Eustathius upon Homer observes, that Sneezing to the left hand was unlucky, but prosperous unto the right; so, as Plutarch relateth, when Themistocles sacrificed in his galley before the battell of Xerxes, and one of the assistants upon the right hand Sneezed; Euphrantides the Southsayer presaged the victory of the Greeks, and the overthrow of the Persians.

Thus we may perceive the custome is more ancient then commonly is conceived; and these opinions hereof in all ages, not any one disease to have been the occasion of this salute and deprecation. Arising at first from this vehement and affrighting motion of the brain, inevitably observable unto the standers by; from whence some finding dependent effects to ensue; others ascribing hereto as a cause what perhaps but casually or inconnexedly succeeded; they might proceed unto forms of speeches, felicitating the good, or deprecating the evil to follow.

CHAP. X.

of the Jews.

THAT Jews stinck naturally, that is, that in their race and nation there is an evil favour, is a received opinion we know not how to admit; although concede many questionable points, and dispute not the verity of sundry opinions which are of affinity hereto. We will acknowledge that certain odours attend on animals, no lesse then certain colours; that pleasant smells are not confined unto vegetables, but found in divers animals, and some more richly then in plants. And though the Probleme of Aristotle enquire why none smells sweet beside the Parde? yet later discoveries adde divers sorts of Monkeys, the Civet Cat and Gazela, from which our Musk proceedeth. We confesse that beside the smell of the species, there may be Individuall odours, and every man may have a proper and peculiar favour; which although not perceptible unto man, who hath this sense, but weak, yet sensible unto Dogs, who hereby can single out their Masters in the dark. We will not deny that particular men have sent forth a pleasant favour, as Theophrastus and Plutarch report of Alexander the great, and Tzetzes and Cardan doe testifie of themselves. That some may also emit an unfavoury odour, we have no reason to deny; for this may happen from the quality of what they have taken; the Factor whereof may discover it self by sweat and urine, as being unmasterable by the naturall heat of man, not to be dulcified by concoction beyond an unfavoury condition: the like may come to passe from putrid humors, as is often discoverable in putrid and malignant fevers. And sometime also in grosse and humid bodies even in the latitude of sanity; the naturall heat of the parts being insufficient for a perfect and through-digestion, and the errors of one concoction not rectifiable by another: but that an unfavoury odour is gentilitious or nationall unto the Jews, if rightly understood, we cannot well concede; nor will the information of reason or sense induce it.

bid. 282 p.

fol. 418.

For first, Upon consult of reason, there will be found no easie assurance for to fasten a materiall or temperamentall propriety upon any nation; there being scarce any condition (but what depends upon climie) which is not exhausted or obscured from the commixture of introvenient nations either by commerce or conquest; much more will it be difficult to make out this affection in the Jews, whose race however pretended to be pure, must needs have suffered inseparable commixtures with nations of all sorts, not only in regard of their profelytes, but their universall dispersion; some being posted from severall parts of the earth, others quite lost, and swallowed up in those nations where they planted. For the tribes of Reuben, Gad, part of Manasses and Naphthali, which were taken by Assur, and the rest at the sacking of Samaria which were led away by Salmanasser into Assyria, and after a year and half arrived at Arsereth, as is delivered in Esdras, these I say never returned, and are by the Jews as vainly expected as their Messias. Of those of the tribe of Juda and Benjamin, which were led captive into Babylon by Nebuchadnezzar, many returned unto Zorobabel; the rest remained, and from thence long after upon invasion of the Saracens, fled as far as India; where yet they are said to remain, but with little difference from the Gentiles.

The Tribes that returned to Judea, were afterward widely dispersed; for beside sixteen thousand which Titus sent to Rome unto the triumph of his father Vespasian, he sold no lesse then an hundred thousand for slaves; not many years after Adrian the Emperour, who ruined the whole Countrey, transplanted many thousands into Spain, from whence they dispersed into divers Countreys, as into France and England, but were banished after from both: from Spain they dispersed into Africa, Italy, Constantinople, and the dominions of the Turke, where they remain as yet in very great numbers. And if (according to good relations) where they may freely speak it, they forbear not to boast that there are at present many thousand Jews in Spain, France and England, and some dispensed withall, even to the degree of Priesthood; it is a matter very considerable, and could they be smelled out, would much advantage, not only the Church of Christ, but also the coffers of Princes.

Now having thus lived in severall Countreys, and alwaies in subjection, they must needs have suffered many commixtures, and we are sure they are not exempted from the common contagion of Venery contracted first from Christians. Nor are fornications unfrequent between them both; there commonly passing opinions of invitement, that their Women desire copulation with them, rather then their own Nation, and affect Christian carnality above circumcised venery. It being therefore acknowledged, that some are lost, evident that others are mixed, and scarce probable that any are distinct, it will be hard to establish this quality upon the Jews, unlesse we also transferre the same, unto those whose generations are mixed, whose genealogies are Jewish, and naturally derived from them.

Again, If we concede a Nationall unfavourinesse in any people, yet shall we finde the Jews lesse subject hereto then any, and that in those regards which most powerfully concur to such effects, that is, their diet and generation. As for their diet, whether in obedience unto the precepts of reason, or the injunctions of parsimony, therein they are very temperate, seldome offending in ebriety or excesse of drink, nor erring in gulosity or superfluity of meats; whereby they prevent indigestion and crudities, and consequently putrefcence of humours. They have in abomination all flesh maimed, or the inwards any way vitiated, and therefore eat no meat but of their own killing.

They

The Jews generally very temperate.

They observe not only fasts at certain times, but are restrained unto very few dishes at all times; so few, that whereas S. Peters sheet will hardly cover our tables, their Law doth scarce permit them to set forth a Lordly feast; nor any way to answer the luxury of our times, or those of our forefathers. For of flesh their Law restrains them many sorts, and such as compleat our feasts: That animall, *Propter convivium natum*, they touch not, nor any of its preparations, or parts so much in respect at Roman tables; nor admit they unto their board, Hares, Conies, Herons, Plovers or Swans. Of Fishes they only taste of such as have both finnes and scales; which are comparatively but few in number, such only, saith Aristotle, whose egge or spawh is arenaceous, whereby are excluded all cetaceous and cartilagineous fishes; many pectinall, whose ribs are rectilineall; many costall, which have their ribs embowed; all spinall, or such as have no ribs, but only a back bone, or somewhat analogous thereto, as Eeles, Congers, Lampries; all that are testaceous, as Oysters, Cocles, Wilks, Schollops, Muscles; and likewise all crustaceous, as Crabs, Shrimps and Lobsters. So that observing a spare and simple diet, whereby they prevent the generation of crudities; and fasting often whereby they might also digest them; they must be lesse inclinable unto this infirmity then any other Nation, whose proceedings are not so reasonable to avoid it.

As for their generations and conceptions (which are the purer from good diet,) they become more pure and perfect by the strict observation of their Law; upon the injunctions whereof, they severely observe the times of Purification, and avoid all copulation, either in the uncleanness of themselves, or impurity of their Women. A rule, I fear, not so well observed by Christians; whereby not only conceptions are prevented, but if they proceed, so vitiated and defiled, that durable iniquations, remain upon the birth; which, when the conception meets with these impurities, must needs be very potent; since in the purest and most fair conceptions, learned men derive the cause of Pox and Meazles, from principles of that nature; that is, the menstruous impurities in the mothers blood, and virulent tinctures contracted by the Infant, in the nutriment of the wombe.

Lastly, Experience will convict it; for this offensive odor is no way discoverable in their Synagogues where many are, and by reason of their number could not be concealed: nor is the same discernible in commerce or conversation with such as are cleanly in Apparell, and decent in their Houses. Surely the Viziers and Turkish Basha's are not of this opinion; who as Sir Henry Blunt informeth, doe generally keep a Jew of their private Counsell. And were this true, the Jews themselves doe not strictly make out the intention of their Law; for in vain doe they scruple to approach the dead, who livingly are cadaverous, or fear any outward pollution, whose temper pollutes themselves. And lastly, were this true, our opinion is not impartiall; for unto converted Jews who are of the same seed, no man imputeth this unfavoury odor; as though Aromatized by their conversion, they amitted their sent with their Religion, and smelt no longer then they favoured of the Jew.

Now the ground that begat or propagated this assertion, might be the distastfull avernesse of the Christian from the Jew, from the villany of that fact, which made them abominable and stinck in the nostrils of all men. Which reall practice, and metaphorical expression, did after proceed into a literall construction; but was a fraudulent illation; for such an evil favour their father Jacob acknowledged in himself, when he said, his sons had made him stinck in the land, that is, to be abominable unto the inhabitants there-

Quanta est gula, quae sibi totos ponit Apros! Animal propter convivium natum

The originall of materiall causes of the Pox and Meazles.

Gen. 34.

of. Now how dangerous it is in sensible things to use metaphoricall expressions unto the people, and what absurd conceits they will swallow in their literals; an impatient example we have in our own profession; who having called an eating Ulcer by the name of a Wolfe, common apprehension conceives a reality therein; and against our selves ocular affirmations are pretended to confirm it.

The nastinesse of that Nation, and sluttish course of life hath much promoted the opinion, occasioned by their servile condition at first, and inferiour waies of parsimony ever since; as is delivered by Mr Sandys, They are generally fat, saith he, and ranck of the savours which attend upon sluttish corpulency. The Epithetes assigned them by ancient times have also advanced the same; for Ammianus Marcellinus describeth them in such language; and Martiall more ancient, in such a relative expression sets forth unfavoury Bassa,

Quod jejunia Sabbatariorum

Mallem, quàm quod oles, olere Bassa.

From whence notwithstanding we cannot inferre an inward imperfection in the temper of that Nation; it being but an effect in the breath from outward observation, in their strict and tedious fasting; and was a common effect in the breaths of other Nations, became a Proverbe among the Greeks, and the reason thereof begot a Probleme in Aristotle.

*Nuseias ὀξυς,
jejunia olere.*

Lastly, If all were true; and were this favour conceded, yet are the reasons alledged for it no way satisfactory. Hucherus in his Tract *de Sterilitate*, and after him Alsarius Crucius in his medicall Epistles, imputes this effect unto their abstinence from salt or salt meats; which how to make good in the present diet of the Jews we know not; nor shall we conceive it was observed of old, if we consider they seasoned every Sacrifice, and all oblations whatsoever; whereof we cannot deny a great part was eaten by the Priests; and if the offering were of flesh, it was salted no lesse then thrice, that is, once in the common chamber of salt, at the footstep of the Altar, and upon the top thereof, as is at large delivered by Maimonides. Nor if they refrained all salt, is the illation very urgent; for many there are not noted for ill odours, which eat no salt at all; as all carnivorous Animals, most Children, many whole Nations, and probably our Fathers after the Creation; there being indeed in every thing we eat, a naturall and concealed salt, which is separated by digestions, as doth appear in our tears, sweat and urines, although we refrain all salt, or what doth seem to contain it.

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Another cause is urged by Campegius, and much received by Christians; that this ill favour is a curse derived upon them by Christ, and stands as a badge or brand of a generation that crucified their *Salvator*. But this is a conceit without all warrant; and an easie way to take off dispute in what point of obscurity soever. A method of many Writers, which much depreciates the esteem and value of miracles; that is, therewith to salve not only reall verities, but also nonexistencies. Thus have elder times not only ascribed the immunity of Ireland from any venomous beast, unto the staffe or rod of Patrick; but the long tayles of Kent unto the malediction of Austin.

Phaeop. Ralegh

Thus therefore, although we concede that many opinions are true which hold some conformity unto this, yet in assenting hereto, many difficulties must arise: it being a dangerous point to annex a constant property unto any Nation, and much more this unto the Jew; since 'tis not verifiable by observation; since the grounds are feeble that should establish it; and lastly, since if all were true, yet are the reasons alleadged for it, of no sufficiency to maintain it.

CHAP. XI.

Of Pigmies.

BY Pigmies we understand a dwarfish race of people, or lowest diminution of mankind, comprehended in one cubit, or as some will have it, in two foot or three spans; not taking them single, but nationally considering them, and as they make up an aggregated habitation. Whereof although affirmations be many, and testimonies more frequent then in any other point which wise men have cast into the list of fables, yet that there is, or ever was such a race or Nation, upon exact and confirmed testimonies, our strictest enquiry receives no satisfaction.

I say, exact testimonies, first, In regard of the Authors from whom we derive the account; for though we meet herewith in Herodotus, Philostratus, Mela, Pliny, Solinus and many more; yet were they derivative Relators, and the primitive Author was Homer; who, using often similies, as well to delight the ear, as to illustrate his matter, in the third of his Iliads, compareth the Trojanes unto Cranes, when they descend against the Pigmies; which was more largely set out by Oppian, Juvenal, Mantuan and many Poets since; and being only a pleasant figment in the fountain, became a solemn story in the stream, and current still among us.

Again, Many professed enquirers have rejected it; Strabo an exact and judicious Geographer, hath largely condemned it as a fabulous story in the first of his Geographie. Julius Scaliger a diligent enquirer, accounts thereof, but as a Poeticall fiction; Ulysses Aldrovandus a most exact Zoographer in an expresse discourse hereon, concludes the story fabulous, and a poeticall account of Homer; and the same was formerly conceived by Eustathius his excellent commentator. *Albertus Magnus* a man oft times too credulous, herein was more then dubious; for he affirmeth, if any such dwarfs were ever extant, they were surely some kinde of Apes; which is a conceit allowed by Cardan, and not esteemed improbable by many others.

There are I confesse two testimonies, which from their authority admit of consideration. The first of Aristotle, whose words are these, in the eighth of his History of animals, *ἡ δὲ ἱστία, &c.* That is, *Hic locus est quem incolunt Pygmei, non enim id fabula est, sed pusillum genus, ut aiunt.* Wherein indeed Aristotle plaies the Aristotle, that is, the wary and evading assertor; For though with *non est id fabula*, he seem at first to confirm it, yet at the last he claps in, *Sic ut aiunt*, and shakes the belief he put before upon it. And therefore I observe Scaliger hath not translated the first; perhaps supposing it surreptitious or unworthy so great an assertor. And truly for those books of animals, or work of eight hundred talents, as Atheneus termes it, although ever to be admired, and contain most excellent truths; yet are many things therein delivered upon relation, and some things repugnant unto the history of our senses; as we are able to make out in some, and Scaliger hath observed in many more, as he hath freely declared in his Comment upon that piece.

The second testimony is deduced from holy Scripture; that is, Ezech: 27. verse 11. thus rendered in the vulgar translation, *Sed & Pygmaei qui erant in turribus tuis, pharetras suas suspenderunt in muris tuis per gyrum:* from whence notwithstanding we cannot inferre this assertion; for first the Translators

25.

15 in fine.

flatours accord not, and the Hebrew word *Gamadim* is very variously rendered. Though Aquila, Vatablus and Lyra will have it *Pygmei*, yet in the Septuagint, it is no more then Watchmen; in the Chaldie, Cappadocians; in Symmachus, Medes. Theodotion of old, and Tremellius of late, have retained the Textuarie word; and so have the Italian, French and English Translatours, that is, the men of Arvad were upon thy walls round about, and the Gammadims were in thy towers.

Nor doe men only dissent in the Translation of the word, but in the Exposition of the sense and meaning thereof; for some by Gammadims understand a people of Syria, so called from the city Gamala; some hereby understand the Cappadocians, many the Medes, and hereof Forerius hath a singular Exposition, conceiving the Watchmen of Tyre, might well be called Pigmies, the Towers of that City being so high, that unto men below they appeared in a cubitall stature. Others expounded it quite contrary to common acception, that is, not men of the least, but of the largest size; so doth Cornelius construe *Pygmei* or *virī cubitales*, that is, not men of a cubit high, but of the largest stature, whose height like that of Giants is rather to be taken by the cubit then the foot; in which phrase we reade the measure of Goliath whose height is said to be six cubits and a span. Of affinity hereto is also the Exposition of Jerom; not taking Pigmies for Dwarves, but stout and valiant Champions; not taking that sense of *πυγμαί*, which signifies the cubit measure, but that which expresth Pugils; that is, men fit for combat and the exercise of the fist. Thus can there be no satisfying illation from this text, the diversity or rather contrariety of Expositions and Interpretations, distracting more then confirming the truth of the story.

Again, I say, exact testimonies; in reference unto circumstantiall relations so diversly or contrarily delivered. Thus the relation of Aristotle placeth them above Ægypt towards the head of Nyle in Africa; Philostratus affirms they are about Ganges in Asia; and Pliny in a third place, that is Gerania in Scythia: some write they fight with Cranes, but Menecles in Athenæus affirms they fight with Partridges; some say they ride on Partridges, and some on the backs of Rams.

Lastly, I say, confirmed testimonies; for though *Paulus Jovius* delivers there are Pigmies beyond Japan; *Pigafeta*, about the Molucca's; and *Olaus Magnus* placeth them in Greenland; yet wanting frequent confirmation in a matter so confirmable, their affirmation carrieth but slow perswasion; * and wise men may think there is as much reality in the † Pigmies of *Paracelsus*; that is, his non-Adamicall men, or middle natures betwixt men and spirits.

There being thus no sufficient confirmation of their verity, some doubt may arise concerning their possibility; wherein, since it is not defined in what dimensions the soul may exercise her faculties, we shall not conclude impossibility; or that there might not be a race of Pigmies, as there is sometimes of Giants. So may we take in the opinion of *Austine*, and his Comment *Ludovicus*; but to beleieve they should be in the stature of a foot or span, requires the preaspection of such a one as *Philetas* the Poet in *Athenæus*; who was faine to fasten lead unto his feet lest the winde should blow him away; or that other in the same Author, who was so little, *ut ad obolum accederet*; a story so strange that we might herein accuse the Printer, did not the account of *Ælian* accord unto it, as *Causabone* hath observed in his learned *Animadversions*.

Lastly, If any such Nation there were, yet is it ridiculous what men have

* The story of Pigmies rejected.

† By Pigmies intending Fairies and other spirits about the earth, as by Nymphs and Salamanders, spirits of fire and water, *Lib. De Pigmies Nymphis, &c.*

have delivered of them; that they fight with Cranes upon the backs of Rams or Partridges: or what is delivered by Ctesias, that they are Negroes in the midst of India; whereof the King of that Country entertaineth three thousand Archers for his guard. Which is a relation below the tale of Oberon; nor could they better defend him; then the Emblem saith they offended Hercules whilest he slept; that is, to wound him no deeper, then to awake him.

CHAP. XII.

Of the great Climactericall year, that is, Sixty three.

Certainly the eyes of the understanding, and those of the sense are differently deceived in their greatest objects; the sense apprehending them in lesser magnitudes then their dimensions require; so it beholdeth the Sunne, the Starres, and the Earth it self; but the understanding quite otherwise; for that ascribeth unto many things farre larger horizons then their due circumscriptions require; and receiveth them with amplifications which their reality will not admit: Thus hath it fared with many Heroes and most worthy persons, who being sufficiently commendable from true and unquestionable merits, have received advancement from falsehood and the fruitfull stock of fables. Thus hath it happened unto the Starres and luminaries of heaven; who being sufficiently admirable in themselves, have been set out by effects no way dependant on their efficiencies, and advanced by amplifications to the questioning of their true endowments. Thus is it not improbable it hath also fared with number; which though wonderfull in it self, and sufficiently magnifiable from its demonstrable affections, hath yet received adjections from the multiplying conceits of men, and stands laden with additions which its equity will not admit.

And so perhaps hath it happened unto the number 7 and 9, which multiplied into themselves doe make up Sixty three; commonly esteemed the great Climactericall of our lives; for the daies of men are usually cast up by Septenaries, and every seventh year conceived to carry some altering character with it, either in the temper of body, minde, or both. But among all other, three are most remarkable, that is 7 times 7 or fourty nine, 9 times 9 or eighty one, and 7 times 9 or the year of Sixty three; which is conceived to carry with it the most considerable fatality; and consisting of both the other numbers was apprehended to comprise the vertue of either; is therefore expected and entertained with fear, and esteemed a favour of fate to passe it over. Which notwithstanding many suspect to be but a Panick terrour, and men to fear they justly know not what; and to speak indifferently, I finde no satisfaction, nor any sufficiency in the received grounds to establish a rationall feare.

Now herein to omit Astrologicall considerations (which are but rarely introduced) the popular foundation whereby it hath continued, is first, the extraordinary power and secret vertue conceived to attend these numbers; whereof we must confesse there have not wanted not onely especiall commendations, but very singular conceptions. Among Philosophers, Pythagoras seemes to have plaied the leading part, which was long after continued by his disciples, and the Italicke Schoole. The Philosophy of

B b

Plato,

The great Climactericall, Sixty three, no such dangerous year.

Plato, and most of the Platonists abounds in numerall considerations; above all Philo the learned Jew, hath acted this part even to superstition; bestowing divers pages in summing up every thing which might advantage this number. Which notwithstanding when a serious Reader shall perpend, he will hardly finde any thing that may convince his judgement, or any further perswade, then the lenity of his belief, or prejudgement of reason inclineth.

Tetracton

For first, Not only the number of 7 and 9 from considerations abstruse have been extolled by most, but all or most of the other digits have been as mystically applauded; for the number of One and Three have not been only admired by the Heathens, but from adorable grounds, the unity of God, and mystery of the Trinity admired by many Christians. The number of four stands much admired not only in the quaternity of the Elements, which are the principles of bodies, but in the letters of the Name of God, which in the Greek, Arabian, Persian, Hebrew and Ægyptian, consisteth of that number; and was so venerable among the Pythagoreans, that they swore by the number four. That of six hath found many leaves in its favour; not only for the daies of the Creation, but its naturall consideration, as being a perfect number, and the first that is compleated by its parts; that is, the sixt, the half, and the third, 1. 2. 3. which drawn into a summe make six: The number of Ten hath been as highly extolled, as containing even, odde, long and plain, quadrate and cubicall numbers; and Aristotle observed with admiration, that Barbarians as well as Greeks, did use a numeration unto Ten; which being so generall was not to be judged casuall, but to have a foundation in nature. So that not only 7 and 9, but all the rest have had their Elogies, as may be observed at large in Rhodiginus, and in severall Writers since: every one extolling number, according to his subject, and as it advantaged the present discourse in hand.

Again, They have been commended not only from pretended grounds in nature, but from artificiall, casuall or fabulous foundations: so have some endeavoured to advance their admiration, from the 9 Muses, from the 7 Wonders of the World, and from the 7 Gates of Thebes; in that 7 Cities contended for Homer, in that there are 7 Starres in Ursa minor, and 7 in Charles wayne or Plaustrum of Ursa major. Wherein indeed although the ground be naturall, yet either from constellations or their remarkable parts, there is the like occasion to commend any other number; the number 5 from the Starres in Sagitta, 3 from the girdle of Orion, and 4 from Equiculus, Crufero, or the feet of the Centaure; yet are such as these clapt in by very good Authors, and some not omitted by Philo.

Nor are they only extolled from Arbitrary and Poeticall grounds, but from foundations and principles false or dubious. That Women are menstruant and Men pubescent at the year of twice seven, is accounted a punctuall truth; which period neverthelesse we dare not precisely determine, as having observed a variation and latitude in most; agreeably unto the heat of clime or temper; men arising variously unto virility, according to the activity of causes that promote it. *Sanguis menstruus ad diem, ut plurimum, septimum durat*, saith Philo. Which notwithstanding is repugnant unto experience, and the doctrine of Hippocrates, who in his book, *de dicta*, plainly affirmeth, it is thus but with few Women, and only such as abound with pituitous and watery humours.

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It is further conceived to receive addition, in that there are 7 heads of Nyle, but we have made manifest elsewhere, that by the description of Geographers they have been sometime more, and are at present fewer.

In that there were 7 Wise men of Greece; which though generally received,

ved, yet having enquired into the verity thereof, we cannot so readily determine it; for in the life of Thales who was accounted in that number, Diogenes Laertius plainly saith *Magna de eorum numero discordia est*; some holding but four, some ten, others twelve, and none agreeing in their names, though according in their number.

In that there are just 7 Planets or errant Starres in the lower orbs of heaven; but it is now demonstrable unto sense, that there are many more; as Galileo hath declared in his *Nuncius Syderens*; that is, two more in the orbe of Saturne, and no lesse then four more in the sphere of Jupiter. And the like may be said of the Pleiades or 7 Starres, which are also introduced to magnifie this number; for whereas scarce discerning six, we account them 7, by his relation in the same book, there are no lesse then fourty.

That the heavens are encompassed with 7 circles, is also the allegation of Philo; which are in his account, the Artick, Antartick, the Summer and Winter Tropicks, the Æquator, Zodiack and the Milky circle; whereas by Astronomers they are received in greater number. For though we leave out the Lacteous circle (which Aratus, Geminus, and Proclus out of him hath numbred among the rest) yet are there more by four then Philo mentions; that is, the Horizon, Meridian and both the Colures; circles very considerable and generally delivered, not only by Ptolomie and the Astronomers since his time, but such as flourished long before, as Hipparchus and Eudoxus. So that for ought I know, if it make for our purpose, or advance the theme in hand, with equall liberty, we may affirm there were 7 Sybills, or but 7 signes in the Zodiack circle of heaven.

That verse in Virgil translated out of Homer, *O terq̃, quaterq̃, beati*; that is, as men will have it, 7 times happy, hath much advanced this number in criticall apprehensions; yet is not this construction so indubitably to be received, as not at all to be questioned: for though Rhodiginus, Beroaldus and others from the authority of Macrobius so interpret it, yet Servius his excellent Commentator conceives no more thereby then a finite number for indefinite, and that no more is implied then often happy. Strabo the ancientest of them all, in the first of his Geography conceives no more by this in Homer, then a full and excessive expression; whereas in common phrase and received language he should have termed them thrice happy; herein exceeding that number he called them four times happy, that is, more then thrice. And this he illustrates by the like expression of Homer, in the speech of Circe; who to expresse the dread and terrour of the Ocean, sticks not unto the common forme of speech in the strict account of its reciprocations; but largely speaking, saith, it ebbes and flowes no lesse then thrice a day, *terq̃ die revomit fluctus, iterumq̃ resorbet*. And so when 'tis said by Horace, *felices ter & amplius*, the exposition is sufficient, if we conceive no more then the letter fairly beareth, that is, four times, or indefinitely more then thrice.

But the main considerations which most set off this number are observations drawn from the motions of the Moon, supposed to be measured by sevens; and the criticall or decretory daies dependant on that number. As for the motion of the Moon, though we grant it to be measured by sevens, yet will not this advance the same before its fellow numbers; for hereby the motion of other Starres are not measured; the fixed Starres by many thousand years, the Sunne by 365 daies, the superiour Planets by more, the inferiour by somewhat lesse. And if we consider the revolution of the first Movable, and the daily motion from East to West, common unto all the Orbs, we shall finde it measured by another number; for being performed in four and twen-

See fol. 212 of number of the
Sybills contributed

Τὸς μύητες
Δαυαοὶ τρεῖς τε
ἑσάχες.

What a feclary
moneth is.

255²⁰

*De officiofri
partu.*

ty hours, it is made up of 4 times 6: and this is the measure and standard of other parts of time, of moneths, of years, Olympiades, Lustres, Indictions, Cycles, Jubilies, &c.

Again, Moneths are not only Lunary, and measured by the Moon, but also Solary, and determined by the motion of the Sun; that is, the space wherein the Sun doth passe 30 degrees of the Ecliptick. By this moneth Hippocrates computed the time of the Infants gestation in the wombe; for 9 times 30, that is, 270 daies, or compleat 9 moneths, make up fourty weeks the common compute of Women. And this is to be understood, when he saith, 2 daies makes the fifteenth, and 3 the tenth part of a moneth. This was the moneth of the ancient Hebrews before their departure out of Ægypt; and hereby the compute will fall out right, and the account concurre, when in one place it is said, the waters of the flood prevailed an hundred and fifty daies; and in another it is delivered, that they prevailed from the seventeenth day of the second moneth, unto the seventeenth day of the seventh. As for hebdomadall periods or weeks, although in regard of their Sabbaths they were observed by the Hebrews, yet is it not apparent, the ancient Greeks or Romans used any; but had another division of their moneths into Ides, Nones and Calends.

Moreover, moneths howsoever taken, are not exactly divisible into septenaries or weeks, which fully contain seven daies; whereof four times doe make compleatly twenty eight. For, beside the usuall or Calendary moneth, there are but four considerable; the moneth of Peragrations, of Apparition, of Consecution, and the medicall or Decretoriall moneth; whereof some come short, others exceed this account. A moneth of Peragrations, is the time of the Moons revolution from any part of the Zodiack, unto the same again; and this containeth but 27 daies, and about 8 houres; which cometh short to compleat the septenary account. The moneth of Consecution, or as some will terme it, of Progression, is the space between one conjunction of the Moon with the Sun, unto another; and this containeth 29 daies and an half: for the Moon returning unto the same point wherein it was kindled by the Sun, and not finding it there again (for in the mean time, by its proper motion it hath passed through 2 signes,) it followeth after, and attains the Sun in the space of 2 daies, and 4 houres more, which added unto the account of Peragrations, makes 29 daies and an half; so that this moneth exceedeth the latitude of Septenaries, and the fourth part comprehendeth more then 7 daies. A moneth of Apparition, is the space wherein the Moon appeareth (deducting three daies wherein it commonly disappeareth; and being in combustion with the Sun, is presumed of lesse activity,) and this containeth but 26 daies and 12 houres. The Medicall moneth not much exceedeth this, consisting of 26 daies, and 22 houres, and is made up out of all the other moneths. For if out of 29 and an half, the moneth of Consecution, we deduct 3 daies of disappearance, there will remain the moneth of Apparition 26 daies and 12 houres; whereto if we adde 27 daies and 8 houres, the moneth of Peragrations, there will arise 53 daies and 10 houres; which divided by 2, makes 26 daies and 22 houres, called by Physitians the Medicall moneth; introduced by Galen against Archigenes, for the better compute of Decretory or Criticall daies.

What a Criticall
day is.

As for the Criticall daies (such I mean wherein upon a decertation between the disease and nature, there ensueth a sensible alteration, either to life or death,) the reasons thereof are rather deduced from Astrology, then Arithmetick; for accounting from the beginning of the disease, and reckoning on unto the seventh day, the Moon will be in a Tetragonall or Quadrate aspect,

aspect, that is, 4 signes removed from that wherein the disease began; in the fourteenth day it will be in an opposite aspect; and at the end of the third septenary Tetragonall again; as will most graphically appear in the figures of Astrologers, especially Lucas Gauricus, *De diebus decretorijs*.

Again, (Beside that computing by the Medicall moneth; the first hebdomade or septenary consists of 6 daies, seventeen houres and an half, the second happeneth in 13 daies and eleven houres, and the third but in the twentieth naturall day) what Gulen first, and Aben-Ezra since observed in his Tract of Criticall daies, in regard of Eccentricity and the Epicycle or lesser orbe wherein it moveth, the motion of the Moon is various and unequal; whereby the Criticall account must also vary: for though its middle motion be equall, and of 13 degrees, yet in the other it moveth sometimes fifteen, sometimes lesse then twelve. For moving in the upper part of its orbe, it performeth its motion more slowly then in the lower; insomuch that being at the height it ariveth at the Tetragonall and opposite signes sooner; and the Criticall day will be in 6 and 13, and being at the lowest, the criticall account will be out of the latitude of 7, nor happen before the 8 or ninth day. Which are considerations not to be neglected in the compute of decretory daies, and manifestly declare that other numbers must have a respect herein as well as 7 and fourteen.

lowest.
v height.

Lastly, Some things to this intent are deduced from holy Scripture; thus is the year of Jubile introduced to magnifie this number, as being a year made out of 7 times 7; wherein notwithstanding there may be a misapprehension; for this ariseth not from 7 times 7, that is, 49; but was observed the fiftieth year, as is expressed, Levit. 25. And you shall hallow the fiftieth year, a Jubile shall that fiftieth year be unto you. Answerable whereto is the exposition of the Jews themselves, as is delivered by Ben-Maimon; that is, the year of Jubile cometh not into the account of the years of 7, but the fourty ninth is the Release, and the fiftieth the year of Jubile. Thus is it also esteemed no small advancement unto this number, that the Genealogy of our Saviour is summed up by 14, that is, this number doubled; according as is expressed, Matth. 1. So all the generations from Abraham to David are fourteen generations, and from David unto the carrying away into Babylon, are fourteen generations; and from the carrying away into Babylon unto Christ, are fourteen generations. Which neverthelesse must not be strictly understood as numerall relations require; for from David unto Jeconiah are accounted by Matthew but 14 generations; whereas according to the exact account in the history of Kings, there were at least 17; and 3 in this account, that is, Ahazias, Joas and Amazias are left out. For so it is delivered by the Evangelist; And Joram begat Ozias; whereas in the Regall genealogy there are 3 successions between; for Ozias or Uzziah was the son of Amazias, Amazias of Joas, Joas of Azariah, and Azariah of Joram; so that in strict account Joram was the *Abavus* or grandfather twice removed, and not the father of Ozias. And these omitted descents made a very considerable measure of time, in the Royall chronology of Judah; for though Azariah reigned but one year, yet Joas reigned fourty, and Amazias no lesse then nine and twenty. However therefore these were delivered by the Evangelist, and carry (no doubt) an incontrollable conformity unto the intention of his delivery; yet are they not appliable unto precise numerality, nor strictly to be drawn unto the rigid test of numbers.

Lastly, Though many things have been delivered by Authors concerning number, and they transferred unto the advantage of their nature, yet are

they oft times otherwise to be understood, then as they are vulgarly received in active and causall considerations; they being many times delivered Hieroglyphically, Metaphorically, Illustratively, and not with reference unto action or causality. True it is, that God made all things in number, weight and measure, yet nothing by them or through the efficacy of either. Indeed our daies, actions and motions being measured by time (which is but motion measured) what ever is observable in any, fals under the account of some number; which notwithstanding cannot be denominated the cause of those events. So doe we unjustly assign the power of Action even unto Time it self; nor doe they speak properly who say that Time consumeth all things; for Time is not effective, nor are bodies destroyed by it, but from the action and passion of their Elements in it; whose account it only affordeth; and measuring out their motion, informs us in the periods and termes of their duration, rather then effecteth or Physically produceth the same.

De annis Climactericis.
De occultis naturæ miraculis.

Bell. lib. 5.

A second consideration which promoteth this opinion, are confirmations drawn from Writers, who have made observations or set down favourable reasons for this Climactericall year; so have *Henricus Ranzovius*, *Baptista Codronchus*, and *Livinus Lemnius* much confirmed the same; but above all, that memorable Letter of Augustus sent unto his Nephew Caius, wherein he encourageth him to celebrate his nativity, for he had now escaped Sixty three the great Climactericall and dangerous year unto man; which notwithstanding rightly perpended, it can be no singularity to question it, nor any new Paradox to deny it.

For first, It is implicitly, and upon consequence denied by Aristotle in his Politicks, in that discourse against Plato, who measured the vicissitude and mutation of States, by a periodicall fatality of number. Ptolomie that famous Mathematician plainly saith, he will not deliver his doctrines by parts and numbers which are ineffectuall, and have not the nature of causes; now by these numbers saith Rhodiginus and Mirandula, he implieth Climactericall years, that is, septenaries, and novenaries set down by the bare observation of numbers. Censorinus an Author of great authority, and sufficient antiquity, speaks yet more amply in his book *De die Natali*, wherein expressly treating of Climactericall daies, he thus delivereth himself. Some maintain that 7 times 7 that is, fourty nine, is most dangerous of any other, and this is the most generall opinion; others unto 7 times 7 adde 9 times 9, that is, the year of eighty one, both which consisting of square and quadrate numbers, were thought by Plato and others to be of great consideration; as for this year of Sixty three or 7 times 9, though some esteem it of most danger, yet doe I conceive it lesse dangerous then the other; for though it containeth both numbers above named, that is, 7 and 9, yet neither of them square or quadrate; and as it is different from them both, so is it not potent in either. Nor is this year remarkable in the death of many famous men. I finde indeed that Aristotle died this year, but he by the vigour of his minde, a long time sustained a naturall infirmity of stomach; so that it was a greater wonder he attained unto Sixty three, then that he lived no longer. The Psalme of Moses hath mentioned a year of danger differing from all these: and that is ten times 7 or seventy; for so it is said, The daies of Man are threescore and ten; and the very same is affirmed by Solon, as Herodotus relates in a speech of his unto Cræsus, *Ego annis septuaginta humane vitæ modum definio*: and surely that year must be of greatest danger, which is the Period of all the rest; and fewest safely passe thorow that, which is set as a bound for few or none to passe. And therefore the consent of elder times,

310.

times, setting their conceits upon Climasters, not only differing from this of ours, but one another; though severall Nations and ages doe fancy unto themselves different years of danger, yet every one expects the same event, and constant verity in either.

Again, Though Varro divided the daies of man into five portions, Hippocrates into 7, and Solon into ten; yet probably their divisions were to be received with latitude, and their considerations not strictly to be confined unto their last unities. So when Varro extendeth *Pueritia* unto 15. *Adolescentia* unto 30. *Juventus* unto 35. there is a latitude between the termes or Periods of compute, and the verity holds good in the accidents of any years between them. So when Hippocrates divideth our life into 7 degrees or stages, and maketh the end of the first 7, of the second 14. of the third 28. of the fourth 35. of the fift 47. of the sixt 56. and of the seventh, the last year when ever it happeneth; herein we may observe he maketh not his divisions precisely by 7 and 9 and omits the great Climastericall; beside there is between every one at least the latitude of 7 years, in which space or intervall, that is either in the third or fourth year, what ever falleth out is equally verified of the whole degree, as though it had happened in the seventh. Solon divided it into ten Septenaries, because in every one thereof, a man received some sensible mutation; in the first is Dedentition or falling of teeth: in the second Pubescence; in the third the beard groweth; in the fourth strength prevails; in the fifth maturity for issue; in the sixth moderation of appetite; in the seventh prudence, &c. Now herein there is a tolerable latitude, and though the division proceed by 7 yet is not the totall verity to be restrained unto the last year; nor constantly to be expected the beard should be compleat at 21. or wisdom acquired just in 49. and thus also though 7 times 9 contain one of those septenaries, and doth also happen in our declining years; yet might the events thereof be imputed unto the whole septenary; and be more reasonably entertained with some latitude, then strictly reduced unto the last number; or all the accidents from 56. imputed unto Sixty three.

Thirdly, Although this opinion may seem confirmed by observation, and men may say it hath been so observed, yet we speak also upon experience, and doe beleve that men from observation will collect no satisfaction. That other years may be taken against it, especially if they have the advantage to precede it; as sixty against Sixty three, and Sixty three against 66. for fewer attain to the latter then the former; and so surely in the first septenary doe most die, and probably also in the very first year; for all that ever lived were in the account of that year; beside, the infirmities that attend it are so many, and the body that receives them so inconfirmed, we scarce count any alive that is not past it.

Fabritius Paduanus in his work *De catena temporis*, discoursing of the great Climastericall, attempts a numeration of eminent men, who died in that year; but in so small a number, as not sufficient to make a considerable Induction; he mentioneth but four, Diogenes Cynicus, Dionysius Heracleoticus, Xenocrates Platonius, and Plato: as for Dionysius, as Censorinus witnesseth, he famished himself in the 82 year of his life; Xenocrates by the testimony of Laertius fell into a cauldron, and died the same year; and Diogenes the Cynick by the same testimony lived almost unto ninety. The date of Platoes death is not exactly agreed on, but all dissent from this which he determineth; Neantes in Laertius extendeth his daies unto 84. Suidas unto 82, but Hermippus defineth his death in 81; and this account seemeth most exact; for if, as he delivereth, Plato was born in the 88 Olympiade,

piade, and died in the first year of the 108, the account will not surpasse the year of 81, and so in his death he verified the opinion of his life, and of the life of man, whose Period, as Censorinus recordeth, he placed in the Quadrate of 9 or 9 times 9, that is, eighty one; and therefore as Seneca delivereth, the Magicians at Athens did sacrifice unto him, as declaring in his death somewhat above humanity; because he died in the day of his nativity, and without deduction justly accomplished the year of eighty one. Bodine, I confesse, delivers a larger list of men that died in this year, whose words in his method of History are these; *Moriuntur innumerabiles anno sexagesimo tertio*, Aristoteles, Chrysippus, Bocatius, Bernardus, Erasmus, Lutherus, Melancthon, Sylvius, Alexander, Jacobus Sturmius, Nicolaus Cusanus, Thomas Linacer, *eadem anno Cicero casus est*. Wherein beside that it were not difficult to make a larger Catalogue of memorable persons that died in other years, we cannot but doubt the verity of his Induction. As for Sylvius and Alexander, which of that name he meaneth I know not; but for Chrysippus by the testimony of Laertius, he died in the 73 year, Bocatius in the 62, Linacer the 64, and Erasmus exceeded 70, as Paulus Jovius hath delivered in his Elogy of learned men; and as for Cicero, as Plutarch in his life affirmeth, he was slain in the year of 64; and therefore sure the question is hard set, and we have no easie reason to doubt, when great and entire Authors shall introduce unjustifiable examples, and authorize their assertions by what is not authentickall.

Cholerick men
commonly shorter-lived.

Fourthly, They which proceed upon strict numerations, and will by such regular and determined waies measure out the lives of men, and periodically define the alterations of their tempers; conceive a regularity in mutations, with an equality in constitutions, and forget that variety which Physitians therein discover. For seeing we affirm that women doe naturally grow old before men, that the cholerick fall short in longavity of the sanguine, that there is *senium ante senectutem*, and many grow old before they arrive at age; we cannot affix unto them all one common point of danger, but should rather assign a respective fatality unto each: which is concordant unto the doctrine of the numerists, and such as maintain this opinion: for they affirm that one number respecteth men, another women, as Bodine explaining that of Seneca, *Septimus quisque annus aetatis signum imprimit*, subjoins, *Hoc de maribus dictum oportuit, hoc primum intueri licet, perfectum numerum, id est sextum feminas, septenarium mares immutare*.

Fifthly, Since we esteem this opinion to have some ground in nature, and that nine times seven revolutions of the Sunne, imprint a dangerous Character on such as arrive unto it; it will leave some doubt behinde, in what subjection hereunto were the lives of our forefathers presently after the flood, and more especially before it; who attaining unto 8 or 900 years, had not their Climacters computable by digits, or as we doe account them; for the great Climactericall was past unto them before they begat children, or gave any Testimony of their virility; for we read not that any begat children before the age of sixty five. And this may also afford a hint to enquire, what are the Climacters of other animated creatures; whereof the lives of some attain not so farre as this of ours, and that of others extends a considerable space beyond.

Lastly, The imperfect accounts that men have kept of time, and the difference thereof both in the same and divers common wealths, will much distract the certainty of this assertion. For though there were a fatality in this year, yet divers were, and others might be out in their account, aberring severall waies from the true and just compute, and calling that one year, which perhaps might be another.

For

For first, They might be out in the commencement or beginning of their account, for every man is many moneths elder then he computeth; for although we begin the same from our nativity, and conceive that no arbitrary, but naturall term of compute, yet for the duration of life or existence, we participate in the womb the usuall distinctions of time; and are not to be exempted from the account of age and life, where we are subject to diseases, and often suffer death. And therefore Pythagoras, Hippocrates, Diocles, Avicenna and others, have set upon us numerall relations and temporall considerations in the womb; not only affirming the birth of the seventh moneth to be vitall, that of the eight mortall, but the progression thereto to be measured by rule, and to hold a proportion unto motion and formation; as what receiveth motion in the seventh, to be perfected in the Triplicities; that is, the time of conformation unto motion is double, and that from motion unto the birth, treble; So what is formed the 35 day is moved the seventy, and born the 210 day. And therefore if any invisible causality there be, that after so many years doth evidence it self at Sixty three, it will be questionable whether its activity only set out at our nativity, and begin not rather in the womb; wherein we place the like considerations. Which doth not only entangle this assertion, but hath already embroiled the endeavours of Astrology in the erection of Schemes, and the judgement of death or diseases; for being not incontroulably determined, at what time to begin, whether at conception, animation or exclusion (it being indifferent unto the influence of heaven to begin at either) they have invented another way, that is, to begin *ab Hora questionis*, as Haly, Messahallach, Ganivetus and Guido Bonatus have delivered.

Again, In regard of the measure of time by moneths and years, there will be no small difficulty; and if we shall strictly consider it, many have been and still may be mistaken. For neither the motion of the Moon, whereby moneths are computed, nor of the Sunne whereby years are accounted, consisteth of whole numbers, but admits of fractions, and broken parts, as we have already declared concerning the Moon. That of the Sunne consisteth of 365 daies, and almost 6 hours, that is, wanting eleven minutes; which 6 hours omitted, or not taken notice of, will in processe of time largely deprave the compute; and this is the occasion of the Bissextile or leap-year, which was not observed in all times, nor punctually in all Common-wealths; so that in Sixty three years there may be lost almost 18 daies, omitting the intercalation of one day every fourth year, allowed for this quadrant, or 6 hours super-numerary. And though the same were observed, yet to speak strictly a man may be somewhat out in the account of his age at Sixty three; for although every fourth year we insert one day and so fetch up the quadrant, yet those eleven minutes whereby the year comes short of perfect 6 hours, will in the circuit of those years arise unto certain hours; and in a larger progression of time unto certain daies. Whereof at present we finde experience in the Calender we observe. For the Julian year of 365 daies being eleven minutes larger then the annuall revolution of the Sunne, there will arise an anticipation in the Equinoxes; and as Junctinus computeth, in every 136 year they will anticipate almost one day. And therefore those ancient men and Nestors of old times, which yearly observed their nativities, might be mistaken in the day; nor that to be construed without a grain of Salt, which is delivered by Moses in the Book of Exodus; At the end of four hundred years, even the self same day, all the hoast of Israel went out of the land of Egypt; for in that space of time the Equinoxes had anticipated, and the eleven minutes had amounted far above a day. And this compute rightly considered will fall

C c

fouler

Comment in
Spheram Ioh.
de Sacro bosco.

See two other
like instances. 26.

which implies it falls foul
in its position & signification.

Math Histor.

fouler on them who cast up the lives of Kingdomes, and summe up their duration by particular numbers; as Plato first began, and some have endeavoured since by perfect and sphericall numbers, by the square and cube of 7 and 9 and 12, the great number of Plato. Wherein indeed Bodine hath attempted a particular enumeration; but (beside the mistakes committible in the solary compute of years) the difference of Chronologie disturbs the satisfaction and quiet of his computes; some adding, others detracting, and few punctually according in any one year; whereby indeed such accounts should be made up; for the variation in an unite destroys the totall illation.

The Lunary year
what.The Solary year
what.

Thirdly, the compute may be unjust not only in a strict acception, of few daies or houres, but in the latitude also of some years; and this may happen from the different compute of years in divers Nations, and even such as did maintain the most probable way of account; their year being not only different from one another, but the civill and common account disagreeing much from the naturall year, whereon the consideration is founded. Thus from the testimony of Herodotus, Censorinus and others, the Greeks observed the Lunary year, that is, twelve revolutions of the Moon, 354 daies; but the Egyptians, and many others adhered unto the Solary account, that is, 365 daies, that is eleven daies longer; now hereby the account of the one would very much exceed the other: A man in the one would account himself 63, when one in the other would think himself but 61; and so although their nativities were under the same hour, yet did they at different years beleieve the verity of that which both esteemed affixed and certain unto one. The like mistake there is in a tradition of our daies; men conceiving a peculiar danger in the beginning daies of May, set out as a fatall period unto consumptions and Chronicall diseases; wherein notwithstanding we compute by Calenders, not only different from our ancestors, but one another; the compute of the one anticipating that of the other; so that while we are in April, others begin May, and the danger is past unto one, while it beginneth with another.

The different ac-
count or measure
of a year.

Fourthly, Men were not only out in the number of some daies, the latitude of a few years, but might be wide by whole Olympiades and divers Decades of yeares. For as Censorinus relateth, the ancient Arcadians observed a year of three moneths, the Carians of six, the Iberians of four; and as Diodorus and Xenophon *de Equivocis*, alleadgeth, the ancient Egyptians have used a year of three, two, and one moneth: so that the Climactericall was not only different unto those Nations, but unreasonably distant from ours; for Sixty three will passe in their account, before they arrive so high as ten in ours.

Nor if we survey the account of Rome it self, may we doubt they were mistaken, and if they feared Climactericall years, might erre in their numeration; for the civill year whereof the people took notice, did sometime come short, and sometimes exceed the naturall. For according to Varro, Suetonius and Censorinus, their year consisted first of ten moneths which comprehended but 304 daies, that is 61 lesse then ours containeth; after by Numa or Tarquine from a superstitious conceit of imparity were added 51 daies, which made 355, one day more then twelve revolutions of the Moon. And thus a long time it continued, the civill compute exceeding the naturall; the correction whereof, and the due ordering of the Leap-year was referred unto the Pontifices; who either upon favour or malice, that some might continue their offices a longer or shorter time; or from the magnitude of the year that men might be advantaged or endamaged in their contracts, by arbitrary intercalations depraved the whole account. Of this abuse

Cicero

Cicero accused Verres; which at last proceeded so farre that when Julius Cæsar came unto that office, before the redresse hereof he was faine to insert two intercalary moneths unto November and December, when he had already inserted 23 daies unto February; so that that year consisted of 445 daies; a quarter of a year longer then that we observe; and though at the last the year was reformed, yet in the mean time they might be out wherein they summed up Climactericall observations.

Lastly, One way more there may be of mistake, and that not unusuall among us, grounded upon a double compute of the year; the one beginning from the 25 of March, the other from the day of our birth unto the same again, which is the naturall account. Now hereupon many men frequently miscast their daies; for in their age they diduce the account not from the day of their birth, but the year of our Lord, wherein they were born. So a man that was born in January 1582, if he live to fall sick in the latter end of March 1645, will summe up his age, and say I am now Sixty three, and in my Climactericall and dangerous year; for I was born in the year 1582, and now it is 1645, whereas indeed he wanteth many moneths of that year, considering the true and naturall account unto his birth; and accounteth two moneths for a year: and though the length of time and accumulation of years doe render the mistake insensible; yet is it all one, as if one born in January 1644, should be accounted a year old the 25 of March 1645.

All which perpended, it may be easily perceived with what insecurity of truth we adhere unto this opinion; ascribing not only effects depending on the naturall period of time unto arbitrary calculations, and such as vary at pleasure; but confirming our tenets by the uncertain account of others and our selves. There being no positive or indisputable ground where to begin our compute; that if there were, men have been severall waies mistaken; the best in some latitude, others in greater, according to the different compute of divers states, the short and irreconcilable years of some, the exceeding error in the naturall frame of others, and the lapses and false deductions of ordinary accountants in most.

Which duly considered, together with a strict account and criticall examen of reason, will also distract the witty determinations of Astrology. That Saturn the enemy of life, comes almost every seventh year, unto the quadrate or malevolent place, unto that where it begun: that as the Moon about every seventh day ariveth unto a contrary signe, so Saturne, which remaineth about as many years, as the Moon doth daies in one signe, and holdeth the same consideration in years as the Moon in daies; doth cause these periculous periods. Which together with other Planets, and profection of the Horoscope, unto the seventh house, or opposite signes every seventh year; oppresseth living natures, and causeth observable mutations, in the state of sublunary things.

Further satisfaction may yet be had from the learned discourse of Salmasius lately published, if any desire to be informed how different the present observations are from those of the ancients, how every one hath different Climactericalls; with many other observables, impugning the present opinion.

*De annis Cl.
mactericis.*

CHAP. XIII.

Of the Canicular or Dog-daies.

*Iam Procyon
fuerit & stella
vesani Leonis.*

What the Dog-
Starre is.

V Hereof to speak distinctly: among the Southern Constellations two there are which bear the name of the Dog; the one in 16 degrees of latitude, containing on the left thigh a Star of the first magnitude, usually called Procyon or Anticanis; because say some it riseth before the other; which if truly understood, must be restrained unto those habitations, who have elevation of pole above thirty two degrees. Mention thereof there is in Horace, who seems to mistake or confound the one with the other; and after him in Galen, who is willing the remarkablest Starre of the other should be called by this name, because it is the first that ariseth in the constellation; which notwithstanding, to speak strictly, it is not; unlesse we except one of the third magnitude in the right paw in his own and our elevation, and two more on his head in and beyond the degree of sixty: A second and more considerable one there is, and neighbour unto the other, in 40 degrees of latitude, containing 18 Starres, whereof that in his mouth of the first magnitude the Greeks call $\Sigma\epsilon\iota\epsilon\iota$, the Latines *Canis major*, and we emphatically the Dog-Starre.

Now from the rising of this Starre, not cosmically, that is, with the Sun, but Heliacally, that is, its emersion from the raies of the Sunne, the Ancients computed their canicular daies; concerning which there generally passeth an opinion, that during those daies, all medication or use of Physick is to be declined, and the cure committed unto Nature; and therefore as though there were any feriation in nature, or justitiums imaginable in professions, whose subject is naturall, and under no intermissive, but constant way of mutation; this season is commonly termed the Physitians vacation, and stands so received by most men. Which conceit however generall, is not only erroneous, but unnaturall; and subsisting upon foundations either false, uncertain, mistaken or misapplied, deserves not of mankind that indubitable assent it findeth.

For first, which seemes to be the ground of this assertion, and not to be drawn into question, that is, the magnified quality of this Starre conceived to cause or intend the heat of this season, whereby these daies become more observable then the rest; we finde that wiser Antiquity was not of this opinion. For, seventeen hundred years ago it was as a vulgar error rejected by Geminus, a learned Mathematician in his Elements of Astronomy; wherein he plainly affirmeth, that common opinion made that a cause, which was at first observed but as a signe. The rising and setting both of this Starre and others being observed by the Ancients, to denote and testifie certain points of mutation, rather then conceived to induce or effect the same. For our forefathers, saith he, observing the course of the Sun, and marking certain mutations to happen in his progresse through particular parts of the Zodiack, they registred and set them down in their Parapegmes, or Astronomicall Canons; and being not able to designe these times by daies, moneths or years (the compute thereof, and the beginning of the year being different, according unto different Nations) they thought best to settle a generall account unto all; and to determine these alterations by some known and invariable signes; and such did they conceive the rising and setting of the fixed Starres; not ascribing thereto any part of causality, but notice and signification. And thus

thus much seems implied in that expression of Homer, when speaking of the Dog-Starre, he concludeth—*κακὸν δὲ τὸ σὺν αὐτῇ τέτυκται*, *Malum autem signum est*; The same as Petavius observeth, is implied in the word of Ptolomy, and the Ancients, *οὐκ ἐμνησθῆναι*, that is, of the signification of Starres. The terme of Scripture also favours it, as that of Isaiah, *Nolite timere à signis cæli*; and that in Genesis, *Ut sint in signa & tempora*: Let there be lights in the firmament, and let them be for signes and for seasons.

The Primitive magnifiers of this Starre were the Egyptians: who notwithstanding chiefly regarded it, in relation unto their river Nilus. The greatest encrease thereof, falling out about the arise of the Starre: which as Dionysius delivers was by the Ethiopians named *Siris*. From whence that the Sirius or Dog-Starre had its name, is not improbably conjectur'd.

But if all were silent, Galen hath explained this point unto the life; who expounding the reason why Hippocrates declared the affections of the year by the rising and setting of Starres; it was saith he, because he would proceed on signes and principles best known unto all Nations. And upon his words, in the first of the Epidemics, *In Thaso Autumno circa Equinoxium & sub virgiliis pluvie erant multe*, he thus enlargeth. If (saith he) the same compute of times and moneths were observed by all Nations, Hippocrates had never made any mention either of Arcturus, Pleiades or the Dog-Starre; but would have plainly said, In Macedonia, in the moneth Dion, thus or thus was the aire disposed. But for as much as the Moneth Dion is only known unto the Macedonians, but obscure unto the Athenians and other Nations, he found more generall distinctions of time, and instead of naming moneths, would usually say, at the Equinox, the rising of the Pleiades, or the Dog-Starre. And by this way did the Ancients divide the seasons of the year, the Autumne, Winter, Spring, and Summer. By the rising of the Pleiades, denoting the beginning of Summer, and by that of the Dog-Starre, the declination thereof. By this way Aristotle through all his books of Animals, distinguisheth their times of generation, latitancy, migration, sanity and venation. And this were an allowable way of compute, and still to be retained, were the site of the Starres as inalterable, and their assents as invariable as primitive Astronomy conceived them. And therefore though Aristotle frequently mentioneth this Starre, and particularly affirmeth that Fishes in the Bosphorus are best to be caught from the arise of the Dog-Starre, must we conceive the same a meer effect thereof? Nor though Scaliger from hence be willing to inferre the efficacy of this Starre, are we induced hereto; except because the same Philosopher affirmeth; that Tunny is fat about the rising of the Pleiades, and departs upon Arcturus, or that most insects are latent, from the setting of the 7 Starres; except, I say, he give us also leave to inferre that these particular effects and alterations proceed from those Starres; which were indeed but designations of such quarters and portions of the year, wherein the same were observed. Now what Pliny affirmeth of the Orix, that it seemeth to adore this Starre, and taketh notice thereof by voice and stertutation; untill we be better assured of its verity, we shall not salve the sympathy.

Secondly, What slender opinion the Ancients held of the efficacy of this Starre is declarable from their compute. For as Geminus affirmeth, and Petavius his learned Commentator proveth, they began their account from its Heliacall emerfion, and not its cosmicall ascent. The cosmicall ascension of a Starre we terme that, when it ariseth together with the Sun, or the same degree of the Ecliptick wherein the Sun abideth: and that the Heliacall, when a Starre which before for the vicinity of the Sun was not visible, being further

In Perieges.

Bainbrigij Canicularia.

How the Ancients divided the seasons of the year.

What the Cosmicall,

what the Heliacall ascent of Stars is.

removed beginneth to appear. For the annuall motion of the Sun from West to East being farre swifter then that of the fixed Starres, he must of necessity leave them on the East whilst he hastneth forward, and obscureth others to the West: and so the Moon who performs its motion swifter then the Sun (as may be observed in their Conjunctions and Eclipses,) gets Eastward out of his rayes, and appears when the Sun is set. If therefore the Dog-Starre had this effectuall heat which is ascribed unto it, it would afford best evidence thereof, and the season would be most fervent, when it ariseth in the probablest place of its activity, that is, the cosmicall ascent; for therein it ariseth with the Sun, and is included in the same irradiation. But the time observed by the Ancients was long after this ascent, and in the Heliacall emersion; when it becomes at greatest distance from the Sun, neither rising with it nor near it. And therefore, had they conceived any more then a bare signality in this Starre, or ascribed the heat of the season thereunto; they would not have computed from its Heliacall ascent, which was of inferiour efficacy; nor imputed the vehemency of heat unto those points wherein it was more remisse, and where with lesse probability they might make out its action.

Thirdly, Although we derive the authority of these daies from observations of the Ancients, yet are our computes very different, and such as confirm not each other. For whereas they observed it Heliacally, we seem to observe it Cosmically; for before it ariseth Heliacally unto our latitude, the Summer is even at an end. Again, we compute not only from different ascents, but also from divers Starres; they from the greater Dog-starre, we from the lesser; they from Orions; we from Cephalus his Dog; they from Seirius, we from Procyon; for the beginning of the Dog-daies with us is set down the 19 of July, about which time the lesser Dog-star ariseth with the Sun, whereas the Starre of the greater Dog ascendeth not untill after that moneth. And this mistake will yet be larger if the compute be made stricter, and as Dr Bainbrigge late professor of Astronomy in Oxford, hath set it down. Who in the year 1629 computed, that in the Horizon of Oxford the Dog-star arose not before the fifteenth day of August; when in our Almanack accounts those daies are almost ended. So that the common and received time not answering the true compute, it frustrates the observations of our selves. And being also different from the calculations of the Ancients, their observations confirm not ours, nor ours theirs, but rather confute each other.

Nor will the computes of the Ancients be so authentick unto those, who shall take notice, how commonly they applied the celestiaall descriptions of other climes unto their own; wherein the learned Bainbrigijs justly reprehendeth Manilius, who transferred the Ægyptian descriptions unto the Roman account; confounding the observation of the Greek and Barbarick spheres.

Fourthly, (which is the Argument of Geminus) were there any such effectuall heat in this Starre, yet could it but weakly evidence the same in Summer; it being about 40 degrees distant from the Sunne; and should rather manifest its warming power in the Winter, when it remains conjoynd with the Sunne in its Hybernall conversion. For about the 29 of October, and in the 16 of Scorpius, and so again in January, the Sunne performes his revolution in the same parallell with the Dogge-starre. Again, If we should impute the heat of this season, unto the cooperation of any Starres with the Sunne, it seems more favourable for our times, to ascribe the same unto the constellation of Leo. Where besides that the
Sunne

Sunne is in his proper house, it is conjoined with many Starres; whereof two of the first magnitude; and in the 8th of August is corporally conjoined with Basiliscus; a Starre of eminent name in Astrology, and seated in the very Ecliptick.

Fifthly, If all were granted, that observation and reason were also for it, and were it an undeniable truth that an effectuall fervour proceeded from this Starre; yet would not the same determine the opinion now in question; it necessarily suffering such restrictions as take off generall illations. For first in regard of different latitudes, unto some the canicular daies are in the Winter; as unto such as have no latitude, but live in a right Sphere that is under the Æquinoctiall line; for unto them it ariseth when the Sunne is about the Tropic of Cancer, which season unto them is Winter, and the Sun remotest from them. Nor hath the same position in the Summer, that is, in the Æquinoctiall points, any advantage from it; for in the one point the Sun is at the Meridian, before the Dog-starre ariseth; in the other the Starre is at the Meridian before the Sunne ascendeth.

Some latitudes have no canicular daies at all; as namely all those which have more then 73 degrees of Northern Elevation; as the territory of *Nova Zembla*, part of Greenland and Tartary; for unto that habitation the Dog-starre is invisible, and appeareth not above the Horizon.

What latitudes
have no Dog-
daies at all.

Unto such latitudes as it ariseth, it carrieth a various and a very different respect; unto some it ascendeth when Summer is over, whether we compute Heliacally or Cosmically; for though unto Alexandria it ariseth in Cancer, it ariseth not unto Biarmia Cosmically before it be in Virgo, and Heliacally about the Autumnall æquinox. Even unto the latitude of 52 the efficacy thereof is not much considerable, whether we consider its ascent, Meridian altitude or abode above the Horizon; for it ariseth very late in the year, about the eighteenth of Leo, that is, the 31 of July. Of Meridian Altitude it hath but 23 degrees, so that it plaies but obliquely upon us, and as the Sun doth about the 23 of January. And lastly, his abode above the Horizon is not great; for in the eighteenth of Leo, the 31 of July, although they arise together, yet doth it set above 5 houres before the Sun, that is, before two of the clock, after which time we are more sensible of heat, then all the day before.

Secondly, In regard of the variation of the longitude of the Starres, we are to consider (what the Ancients observed not) that the site of the fixed Starres is alterable, and that since elder times they have suffered a large and considerable variation of their longitudes. The longitude of a Starre to speak plainly, is its distance from the first point of numeration toward the East; which first point unto the Ancients was the vernall æquinox. Now by reason of their motion from West to East, they have very much varied from this point: The first Starre of Aries in the time of Meton the Athenian was placed in the very intersection, which is now elongated and removed Eastward 28 degrees; insomuch that now the signe of Aries possesseth the place of Taurus, and Taurus that of Gemini. Which variation of longitude must very much distract the opinion of the Dogge-starre, not only in our daies, but in times before and after; for since the world began it hath arisen in Taurus, and before it end, may have its ascent in Virgo; so that we must place the canicular daies, that is, the hottest time of the year in the Spring in the first Age, and in the Autumn in ages to come.

What the longi-
tude of a Star is.

Thirdly, The Starres have not onely varied their longitudes, whereby their ascents have altered; but have also changed their declinations, where-
by

What the declination of a Star is.

by their rising at all, that is, their appearing hath varied. The declination of a Starre we call its shortest distance from the *Æquator*. Now though the poles of the world and the *Æquator* be immovable, yet because the Starres in their proper motions from West to East, doe move upon the poles of the *Ecliptick* distant 23 degrees and an half from the poles of the *Æquator*, and describe circles parallel not unto the *Æquator*, but the *Ecliptick*; they must be therefore sometimes nearer, sometimes removed further from the *Æquator*. All Starres that have their distance from the *Ecliptick* Northward not more then 23 degrees and an half (which is the greatest distance of the *Ecliptick* from the *Æquator*) may in progression of time have declination Southward, and move beyond the *Æquator*: but if any Starre hath just this distance of 23 and an half (as hath *Capella* on the back of *Erichonius*) it may hereafter move under the *Equinoctiall*; and the same will happen respectively unto Starres which have declination Southward. And therefore many Starres may be visible in our Hemisphere, which are not so at present; and many which are at present, shall take leave of our Horizon, and appear unto Southerne habitations. And therefore the time may come that the *Dogge-starre* may not be visible in our Horizon, and the time hath been, when it hath not shewed it self unto our neighbour latitudes. So that canicular daies there have been none nor shall be; yet certainly in all times some season of the year more notable hot then other.

Why the Dog-daies be so hot.

Lastly, We multiply causes in vain; and for the reason hereof, we need not have recourse unto any Starre but the Sunne, and continuity of its action. For the Sunne ascending into the Northerne signes, begetteth first a temperate heat in the air; which by his approach unto the solstice he intendeth, and by continuation increaseth the same even upon declination. For running over the same degrees again, that is, in *Leo*, which he hath done in *Taurus*, in July which he did in May; he augmenteth the heat in the later which he began in the first, and easily intendeth the same by continuation which was well promoted before. So is it observed, that they which dwell between the Tropicks and the *Æquator*, have their second Summer hotter and more maturative of fruits then the former. So we observe in the day (which is a short year) the greatest heat about two in the afternoon, when the Sunne is past the Meridian (which is his diurnall Solstice) and the same is evident from the Thermometer or observations of the weather-glasse. So are the colds of the night sharper in the Summer about two or three after midnight, and the frosts in Winter stronger about those hours: so likewise in the year we observe the cold to augment, when the daies begin to increase, though the Sunne be then ascensive, and returning from the Winter Tropick. And therefore if we rest not in this reason for the heat in the declining part of Summer, we must discover freezing Starres that may resolve the latter colds of Winter; which whoever desires to invent, let him study the Starres of *Andromeda*, or the nearer constellation of *Pegasus*, which are about that time ascendent.

It cannot therefore unto reasonable constructions seem strange, or favour of singularity that we have examined this point; since the same hath been already denied by some, since the authority and observations of the Ancients rightly understood doe not confirm it, since our present computes are different from those of the Ancients, whereon notwithstanding they depend; since there is reason against it, and if all were granted, yet must it be maintained with manifold restraints, farre otherwise then is received. And lastly, since from plain and naturall principles, the doubt may be fairly salved,

salved, and not clapt up from petitionary foundations and principles unestablished.

But that which chiefly promoted the consideration of these daies, and medically advanced the same, was the doctrine of Hippocrates a Physitian of such repute, that he received a testimony from a Christian, that might have been given unto Christ: The first in his book, *de Aere, Aquis, & locis. Syderum ortus*, &c. That is, we are to observe the rising of Starres, especially the Dogge-starre, Arcturus, and the setting of the Pleiades or seven Starres. From whence notwithstanding we cannot in generall inferre the efficacie of these Starres, or coëfficacie particular in medications: probably expressing no more hereby then if he should have plainly said, especiall notice we are to take of the hottest time in Summer, of the beginning of Autumne and Winter; for by the rising and setting of those Starres were these times and seasons defined. And therefore subjoines this reason, *Quoniam his temporibus morbi finiuntur*, because at these times diseases have their ends; as Physitians well know, and he elsewhere affirmeth, that seasons determine diseases, beginning in their contraries; as the spring the diseases of Autumne, and the Summer those of Winter. Now (what is very remarkable) whereas in the same place he adviseth to observe the times of notable mutations, as the Equinoxes, and the Solstices, and to decline Medication ten daies before and after; how precisely soever canicular cautions be considered, this is not observed by Physitians, nor taken notice of by the people. And indeed should we blindly obey the restraints both of Physitians and Astrologers, we should contract the liberty of our prescriptions, and confine the utility of Physick unto a very few daies; for observing the Dog-daies, and, as is expressed, some daies before, likewise ten daies before and after the Equinoctiall and Solsticiall points; by this observation alone are exempted an hundred daies. Whereunto if we adde the two Egyptian daies in every moneth, the interlunary and plenilunary exemptions, the Eclipses of Sunne and Moon, conjunctions and oppositions Planeticall, the houses of Planets, and the site of the Luminaries under the signes (wherein some would induce a restraint of Purgation or Phlebotomy) there would arise above an hundred more; so that of the whole year the use of Physick would not be secure much above a quarter. Now as we doe not strictly observe these daies, so need we not the other; and although consideration be made hereof, yet might we preferre the nearer Indications, before those which are drawn from the time of the year, or other celestiall relations.

Qui nec fallere potest nec falli.

Diseases commonly determined by what seasons.

The second Testimony is taken out of the last piece of his Age, and after the experience (as some think) of no lesse then an hundred years, that is his book of Aphorismes, or short and definitive determinations in Physick. The Aphorisme alleadged is this; *Sub Cane & ante Canem difficiles sunt purgationes. Sub Cane & Anticane*, say some, including both the Dog-starres; but that cannot consist with the Greek *ὑπὸ κυνῶν, καὶ ἀπὸ κυνῶν*, nor had that Criticisme been ever omitted by Galen; now how true this sentence was in the mouth of Hippocrates, and with what restraint it must be understood by us, will readily appear from the difference between us both in circumstantiall relations.

And first, Concerning his time and Chronology; he lived in the reign of Artaxerxes Longimanus, about the 82 Olympiade, 450 yeares before Christ; and from our times above two thousand. Now since that time (as we have already declared) the Starres have varied their longitudes; and having made large progressions from West to East, the time of the Dog-

D d

starres

When Hippocrates lived.

When Galen lived 243.

Now in regard of the second, and especially the first degree of Purgatives, the Aphorisme is not of force; but we may safely use them, they being benigne and of innoxious qualities. And therefore Lucas Gauricus, who hath endeavoured with many testimonies to advance this consideration, at length concedeth that lenitive Physick may be used, especially when the Moon is well affected in Cancer or in the watery signes. But in regard of the third degree the Aphorisme is considerable; purgations may be dangerous; and a memorable example there is in the medecall Epistles of Crucius, of a Roman Prince that died upon an ounce of Diaphanicon, taken in this season. From the use whereof we refrain not only in hot seasons, but warily exhibit it at all times in hot diseases; which when necessity requires, we can perform more safely then the Ancients, as having better waies of preparation and correction; that is, not only by addition of other bodies, but separation of noxious parts from their own.

But beside these differences between Hippocrates and us, the Physitians of these times and those of Antiquity; the condition of the disease, and the intention of the Physitian, hold a main consideration in what time and place soever. For Physick is either curative or preventive; Preventive we call that which by purging noxious humors, and the causes of diseases, preventeth sickness in the healthy, or the recourse thereof in the valetudinary; this is of common use at the Spring and fall, and we commend not the same at this season. Therapeutick or curative Physick, we term that, which restoreth the Patient unto sanity, and taketh away diseases actually affecting. Now of diseases some are chronicall and of long duration, as quartane Agues, Scurvy, &c. wherein because they admit of delay we deferre the cure to more advantageous seasons: Others we term acute, that is, of short duration and danger, as Fevers, Pleurisies, &c. In which, because delay is dangerous, and they arise unto their state before the Dogge-daies determine; we apply present remedies according unto Indications; respecting rather the acutenesse of the disease, and precipitancy of occasion, then the rising or setting of Stars; the effects of the one being disputable, of the other assured and inevitable.

Diseases Chronicall and Acute, what they be.

And although Astrology may here put in, and plead the secret influence of this Starre; yet Galen in his Comment, makes no such consideration; confirming the truth of the Aphorisme from the heat of the year, and the operation of Medicines exhibited. In regard that bodies being heated by the Summer, cannot so well endure the acrimony of purging Medicines; and because upon purgations contrary motions ensue; the heat of the air attracting the humours outward, and the action of the Medicine retracting the same inward. But these are readily salved in the distinctions before alleadged; and particularly in the constitution of our climate and divers others, wherein the air makes no such exhaustion of spirits. And in the benignity of our Medicines; whereof some in their own natures, others well prepared, agitate not the humors, or make a sensible perturbation.

Strong purgations not so well given in the heat of summer, and why.

Nor doe we hereby reject or condemn a sober and regulated Astrology; we hold there is more truth therein then in Astrologers; in some more then many allow, yet in none so much as some pretend. We deny not the influence of the Starrés, but often suspect the due application thereof; for though we should affirm that all things were in all things; that heaven were but earth celestified, and earth but heaven terrestriated, or that each part above had an influence upon its divided affinity below; yet how to single out these relations, and duly to apply their actions, is a work oft times to be effected by some revelation, and Cabala from above, rather then any Philosophy;

A Problem.

144

Upon the biting of a mad dog there ensues an hydrophobia or fear of water.

A Physitian.
*Quot Themison
egros Autumno
occiderit uno.*
Juvenal.

losophy, or speculation here below. What power soever they have upon our bodies, it is not requisite they should destroy our reasons, that is, to make us rely on the strength of Nature, when she is least able to relieve us; and when we conceive the heaven against us, to refuse the assistance of the earth created for us. This were to suffer from the mouth of the Dog above, what others doe from the teeth of Dogs below; that is, to be afraid of their proper remedy, and refuse to approach any water, though that hath often proved a cure unto their disease. There is in wise men a power beyond the Stars; and Ptolomy encourageth us, that by fore-knowledge, we may evade their actions; for, being but universall causes, they are determined by particular agents; which being inclined, not constrained, contain within themselves the casting act, and a power to command the conclusion.

Lastly, If all be conceded, and were there in this Aphorisme an unrestrained truth, yet were it not reasonable to inferre from a caution a non-usance or abolition, from a thing to be used with discretion, not to be used at all. Because the Apostle bids us beware of Philosophy, heads of extremity will have none at all; an usuall fallacy in vulgar and lesse distinctive brains, who having once overshot the mean, run violently on, and finde no rest but in the extreams.

Now hereon we have the longer insisted, because the error is materiall, and concerns oft times the life of man; an error to be taken notice of by State, and provided against by Princes who are of the opinion of Solomon, that their riches consist in the multitude of their Subjects. An error worse then some reputed Heresies; and of greater danger to the body, then they unto the soul; which whosoever is able to reclaim, he shall save more in one Summer then Themison destroyed in any Autumne; he shall introduce a new way of cure, preserving by Theory, as well as practice, and men not only from death, but from destroying themselves.

THE



THE FIFTH BOOK:

Of many things questionable as they are commonly described in Pictures.

CHAP. I.

Of the Picture of the Pelecan.



And first in every place we meet with the picture of the Pelecan, opening her breast with her bill, and feeding her young ones with the blood distilling from her. Thus is it set forth not only in common signes, but in the Crest and Schucheon of many Noble families; hath been asserted by many holy Writers, and was an Hieroglyphick of piety and pity among the Egyptians; on which consideration, they spared them at their tables.

Notwithstanding upon enquiry we finde no mention hereof in Ancient Zodiographers, and such as have particularly discoursed upon Animals, as Aristotle, Ælian, Pliny, Solinus and many more; who seldome forget proprieties of such a nature, and have been very punctuall in lesse considerable Records. Some ground hereof I confesse we may allow, nor need we deny a remarkable affection in Pelecanus toward their young; for Ælian discoursing of Storks, and their affection toward their brood, whom they instruct to fly, and unto whom they re-deliver up the provision of their bellies, concludeth at last, that Herons and Pelecanus doe the like.

As for the testimonies of Ancient Fathers, and Ecclesiasticall writers, we may more safely conceive therein some Emblematicall then any reall Story: so doth Eucherius confesse it to be the Embleme of Christ; and we are unwilling literally to receive that account of Jerome, that perceiving her young ones destroyed by Serpents, she openeth her side with her bill, by the blood whereof they revive and return unto life again. By which relation they might indeed illustrate the destruction of man by the old Serpent, and his restorement by the blood of Christ; and in this sense we shall not dispute the like relations of Austine, Isidore, Albertus, and many more; and under an Emblematicall intention, we accept it in coat-armour.

As for the Hieroglyphick of the Egyptians, they erected the same upon another consideration, which was parentall affection; manifested in the protection of her young ones, when her nest was set on fire. For as for letting out her blood, it was not the assertion of the Egyptians, but seems translated

unto the Pelecan from the Vulture, as Pierius hath most plainly delivered. *Sed quod Pelicanum (ut etiam aliis plerisque persuasum est) rostro pectus dissectantem pingunt, ita ut suo sanguine filios alat, ab Aegyptiorum historiâ valde alienum est, illi enim vulturem tantum id facere tradiderunt.*

The bignesse of a
Pelecan.

Of her crop.

And lastly, As concerning the picture, if naturally examined, and not Hieroglyphically conceived, it containeth many improprieties, disagreeing almost in all things from the true and proper description. For first, whereas it is commonly set forth green or yellow, in its proper colour, it is inclining to white; excepting the extremities or tops of the wing feathers, which are black. It is described in the bignesse of a Hen, whereas it approacheth and sometimes exceedeth the magnitude of a Swan. It is commonly painted with a short bill; whereas that of the Pelecan attaineth sometimes the length of two spans: The bill is made acute or pointed at the end; whereas it is flat and broad, and somewhat inverted at the extrem. It is described like fislipedes, or birds which have their feet or claws divided; whereas it is palmipedous, or fin-footed like Swans and Geese; according to the Method of nature, in latirostous or flat-bild birds; which being generally swimmers, the organ is wisely contriv'd unto the action, and they are framed with fins or oares upon their feet; and therefore they neither light, nor build on trees, if we except Cormorants, who make their nests like Herons. Lastly, There is one part omitted more remarkable then any other, that is the chowle or crop adhering unto the lower side of the bill, and so descending by the throat; a bagge or sachell very observable, and of capacity almost beyond credit; which notwithstanding, this animall could not want; for therein it receiveth Oysters, Cochles, Scollops, and other testaceous animals, which being not able to break, it retains them untill they open, and vomiting them up, takes out the meat contained. This is that part preserved for a rarity, and wherein (as Sanctius delivers) in one dissected, a Negro childe was found.

CHAP. II.

Of the picture of Dolphins.

THAT Dolphins are crooked, is not only affirmed by the hand of the Painter, but commonly conceived their naturall and proper figure; which is not only the opinion of our times, but seems the belief of elder times before us: for, beside the expressions of Ovid and Pliny, their Pourtraicts in some ancient Coynes are framed in this figure, as will appear in some thereof in Gefner, others in Goltsius, and Lævinus Hulsius in his description of Coynes, from Julius Caesar unto Rhodulphus the second.

Notwithstanding, to speak strictly in their naturall figure they are streight, nor have they their spine convexed, or more considerably embowed, then Sharks, Porpoises, Whales, and other Cetaceous animals, as Scaliger plainly affirmeth: *Corpus habet non magis curvum quam reliqui pisces.* As ocular enquiry informeth; and as unto such as have not had the opportunity to behold them, their proper pourtraicts will discover in Rondeletius, Gefner, and Aldrovandus; and as indeed is deducible from pictures themselves; for though they be drawn repandous, or convexedly crooked in one piece, yet the Dolphin that carrieth Arion is concavously inverted, and hath its spine depressed in another.

And

And therefore what is delivered of their incurvity, must either be taken Emphatically, that is, not really but in appearance; which happeneth, when they leap above water, and suddenly shoot down again; which is a fallacy in vision, whereby straight bodies in a sudden motion protruded obliquely downward, appear unto the eye crooked; and this is the construction of Bello-nius: or if it be taken really, it must not universally and perpetually; that is, not when they swimme and remain in their proper figures, but only when they leape, or impetuously whirle their bodies any way; and this is the opinion of Gesnerus. Or lastly, It must be taken neither really nor emphatically, but only Emblematically; for being the Hyeroglyphick of celerity, and swifter then other animals, men best expressed their velocity by incurvity, and under some figure of a bowe; and in this sense probably doe Heralds also receive it, when from a Dolphin extended, they distinguish a Dolphin embowed.

And thus also must that picture be taken of a Dolphin clasping an Anchor; that is not really, as is by most conceived out of affection unto man, conveying the Anchor unto the ground; but Emblematically, according as Pierius hath expressed it, The swiftest animall conjoined with that heavy body, implying that common morall, *Festina lentè*; and that celerity should alwaies be contempered with cunctation.

CHAP. III.

Of the Picture of a Grasshopper.

There is also among us a common description and picture of a Grasshopper, as may be observed in the pictures of Emblematists in the coats of severall families, and as the word *Cicada* is usually translated in Dictionaries. Wherein to speak strictly, if by this word Grasshopper, we understand that animall which is implied by *τέρονξ* with the Greeks, and by *Cicada* with the Latines; we may with safety affirm the picture is widely mistaken, and that for ought enquiry can inform, there is no such insect in England. Which how paradoxicall soever, upon a strict enquiry, will prove undeniable truth.

For first, That animall the French tearm *Sauterelle*, we a Grasshopper, and which under this name is commonly described by us, is named *Αχις* by the Greeks, by the Latines *Locusta*, and by our selves in proper speech a Locust; as in the diet of John Baptist, and in our Translation, Prov. 30. The Locusts have no King, yet go they forth all of them by bands. Again, Between the *Cicada* and that we call a Grasshopper, the differences are very many, as may be observed in themselves, or their descriptions in Matthioli, Aldrovandus and Muffetus. For first, They are differently cucullated or capuched upon the head and back, and in the *Cicada* the eyes are more prominent: the Locusts have *Antenna* or long horns before, with a long falcation or forcipated taile behinde; and being ordained for saltation, their hinder legs doe farre exceed the other. The Locust or our Grasshopper hath teeth, the *Cicada* none at all; nor any mouth according unto Aristotle; the *Cicada* is most upon trees; and lastly, the note or fritiniacy thereof is farre more shrill then that of the Locust, and its life so short in Summer, that for provision it needs not recourse unto the providence of the Pismire in Winter.

And

And therefore where the *Cicada* must be understood, the pictures of Heralds and Emblematists are not exact, nor is it safe to adhere unto the interpretation of Dictionaries, and we must with candour make out our own Translations: for in the plague of Egypt, Exodus 10. the word *Axpis* is translated a Locust, but in the same sense and subject, Wisdome 16. it is translated a Grasshopper; For them the bitings of Grasshoppers and flies killed: whereas we have declared before, the *Cicada* hath no teeth, but is conceived to live upon dew; and the possibility of its subsistence is disputed by Licetus. Hereof I perceive Muffetus hath taken notice, dissenting from Langius and Lycostenes, while they deliver, the *Cicada*'s destroyed the fruits in Germany, where that insect is not found; and therefore concludeth, *Tam ipsos quam alios deceptos fuisse autumo, dum locustas cicadas esse vulgari errore crederent.*

And hereby there may be some mistake in the due dispensation of medicines defumed from this animall; particularly of Diatettigon commended by Aëtius in the affections of the kidnies. It must be likewise understood with some restriction what hath been affirmed by Isidore, and yet delivered by many, that Cicades are bred out of Cuccow spittle, or Woodseare; that is, that spumous, frothy dew or exudation, or both, found upon Plants, especially about the joints of Lavender and Rosemary, observable with us about the latter end of May. For here the true *Cicada* is not bred, but certain it is, that out of this, some kinde of Locust doth proceed; for herein may be discovered a little insect of a festucine or pale green, resembling in all parts a Locust, or what we call a Grasshopper.

Lastly, The word it self is improper, and the terme of Grasshopper not applicable unto the *Cicada*; for therein the organs of motion are not contrived for saltation, nor are the hinder legges of such extension, as is observable in salient animals, and such as move by leaping, Whereto the Locust is very well conformed; for therein the legges behinde are longer then all the body, and make at the second joint acute angles, at a considerable advancement above their backs.

The mistake therefore with us might have its originall from a defect in our language; for having not the insect with us, we have not fallen upon its proper name, and so make use of a term common unto it and the Locust; whereas other countries have proper expressions for it. So the Italian calls it *Cicada*, the Spaniard *Cigarra*, and the French *Cigale*; all which appellations conform unto the originall, and properly expresse this Animall.

CHAP. IV.

Of the Picture of the Serpent tempting Eve.

IN the Picture of Paradise, and delusion of our first Parents, the Serpent is often described with humane visage; not unlike unto Cadmus, or his wife, in the act of their Metamorphosis. Which is not meerly a pictoriall contrivance or invention of the Picturer, but an ancient tradition and conceived reality, as it stands delivered by Beda and Authors of some antiquity; that is, that Sathan appeared not unto Eve in the naked form of a Serpent, but with a Virgins head, that thereby he might become more acceptable, and his temptation finde the easier entertainment. Which neverthelesse is a conceit not to be admitted, and the plain and received figure, is with better reason embraced.

For

For first, as Pierius observeth from Barcephas, the assumption of humane shape, had proved a disadvantage unto Sathan; affording not only a suspicious amazement in Eve, before the fact, in beholding a third humanity beside her self and Adam; but leaving some excuse unto the woman, which afterward the man took up with lesser reason; that is, to have been deceived by another like her self.

Again, There was no inconvenience in the shape assumed, or any considerable impediment that might disturb that performance in the common form of a Serpent. For whereas it is conceived the woman must needs be afraid thereof, and rather shie then approach it; it was not agreeable unto the condition of Paradise and state of innocencie therein; if in that place as most determine, no creature was hurtfull or terrible unto man, and those destructive effects they now discover succeeded the curse, and came in with thorns and briars; and therefore Eugubinus (who affirmeth this Serpent was a Basilisk) incurreth no absurdity, nor need we inferre that Eve should be destroyed immediately upon that Vision. For noxious animals could offend them no more in the Garden, then Noah in the Ark: as they peaceably received their names so they friendly possessed their natures: and were their conditions destructive unto each other; they were not so unto man, whose constitutions then were antidotes, and needed not fear poisons. And if (as most conceive) there were but two created of every kinde, they could not at that time destroy either man or themselves; for this had frustrated the command of multiplication, destroyed a species, and imperfected the Creation. And therefore also if Cain were the first man born, with him entred not only the act, but the first power of murder, for before that time neither could the Serpent nor Adam destroy Eve, nor Adam and Eve each other; for that had overthrown the intention of the world, and put its Creator to act the sixth day over again.

Moreover, Whereas in regard of speech, and vocall conference with Eve, it may be thought he would rather assume an humane shape and organs, then the improper form of a Serpent; it implies no materiall impediment. Nor need we to wonder how he contrived a voice out of the mouth of a Serpent, who hath done the like out of the belly of a Pythonissa, and the trunk of an Oak; as he did for many years at Dodona.

Lastly, Whereas it might be conceived that an humane shape was fitter for this enterprize, it being more then probable she would be amazed to hear a Serpent speak; some conceive she might not yet be certain that only man was priviledged with speech, and being in the novity of the Creation, and inexperience of all things, might not be affrighted to hear a Serpent speak: Beside she might be ignorant of their natures who was not versed in their names, as being not present at the genrall survey of Animals, when Adam assigned unto every one a name concordant unto its nature. Nor is this only my opinion, but the determination of Lombard and Tostatus; and also the reply of Cyril unto the objection of Julian, who compared this story unto the fables of the Greeks.

293.

98.

bid. supra

III. 292. f.

Col. 1. 2. 3.

88.

88. *supra*.

Why Eve wondered not at the Serpents speaking.

1. 4.

CHAP. V.

Of the Picture of Adam and Eve with Navels.

ANother mistake there may be in the Picture of our first Parents, who after the manner of their posterity are both delineated with a Navell. And this is observable not only in ordinary and stained peeces, but in the Authentick draughts of Urbin, Angelo and others. Which notwithstanding cannot be allowed, except we impute that unto the first cause, which we impose not on the second; or what we deny unto nature, we impute unto Naturity it self; that is, that in the first and most accomplished peece, the Creator affected superfluities, or ordained parts without all use or office.

What the Navell
is, and for what use

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That Adam and
Eve had not Na-
vels.

For the use of the Navell is to continue the infant unto the Mother, and by the vessels thereof to convey its aliment and sustentation. The vessels whereof it consisteth, are the umbilicall vein, which is a branch of the Porta, and implanted in the liver of the Infant; two Arteries likewise arising from the Iliacall branches, by which the Infant receiveth the purer portion of blood and spirits from the mother; and lastly, the Urachos or ligamentall passage derived from the bottome of the bladder, whereby it dischargeth the waterish and urinary part of its aliment. Now upon the birth when the Infant forsaketh the wombe, although it dilacerate, and break the involving membranes, yet doe these vessels hold, and by the mediation thereof the Infant is connected unto the wombe, not only before, but a while also after the birth. These therefore the midwife cutteth off, contriving them into a knot close unto the body of the Infant; from whence ensueth that tortuosity or complicated nodosity we usually call the Navell; occasioned by the colligation of vessels before mentioned. Now the Navell being a part, not precedent, but subsequent unto generation, nativity or parturition, it cannot be well imagined at the creation or extraordinary formation of Adam, who immediately issued from the Artifice of God; nor also that of Eve; who was not solemnly begotten, but suddenly framed, and anomalously proceeded from Adam.

And if we be led into conclusions that Adam had also this part, because we behold the same in our selves, the inference is not reasonable; for if we conceive the way of his formation, or of the first animals, did carry in all points a strict conformity unto succeeding productions, we might fall into imaginations that Adam was made without Teeth; or that he ran through those notable alterations in the vessels of the heart, which the Infant suffereth after birth: we need not dispute whether the egge or Bird were first; and might conceive that Dogges were created blinde, because we observe they are litered so with us. Which to affirm, is to confound, at least to regulate creation unto generation, the first Acts of God, unto the second of Nature, which were determined in that generall indulgence, Encrease and multiply, produce or propagate each other; that is, not answerably in all points, but in a prolonged method according to seminall progression. For the formation of things at first was different from their generation after; and although it had nothing to precede it, was aptly contrived for that which should succeed it. And therefore though Adam were framed without this part, as having no other wombe then that of his proper principles, yet was not his posterity without the same: for the seminality of his fabrick contained the power thereof; and was endued with the science of those parts whose predestinations upon succession it did accomplish.

All

All the Navell therefore and conjunctive part we can suppose in Adam, was his dependency on his Maker, and the connexion he must needs have unto heaven, who was the Sonne of God. For holding no dependence on any preceding efficient but God; in the act of his production there may be conceived some connexion, and Adam to have been in a momentall Navell with his Maker. And although from his carnality and corporall existence, the conjunction seemeth no nearer then of causality and effect; yet in his immortall and diviner part he seemed to hold a nearer coherence, and an umbilicality even with God himself. And so indeed although the propriety of this part be found but in some animals, and many species there are which have no Navell at all; yet is there one link and common connexion, one generall ligament, and necessary obligation of all whatever unto God. Whereby although they act themselves at distance, and seem to be at loose; yet doe they hold a continuity with their Maker. Which catenation or conserving union when ever his pleasure shall divide, let goe, or separate; they shall fall from their existence, essence, and operations; in brief, they must retire unto their primitive nothing, and shrink into ~~that~~ Chaos again.

They who hold the egge was before the Bird, prevent this doubt in many other animals, which also extendeth unto them; for Birds are nourished by umbilical vessels, and the Navell is manifest sometimes a day or two after exclusion; the same is probable in all oviparous exclusions, if the lesser part of egges must serve for the formation, the greater part for nutriment. The same is made out in the egges of Snakes; and is not improbable in the generation of Porwiggles or Tadpoles; and may be also true in some vermiparous exclusions; although (as we have observed the daily progresse thereof) the whole Maggot is little enough to make a Flye, without any part remaining.

CHAP. VI.

*Of the Pictures of Eastern Nations, and the Jews at their Feasts,
especially our Saviour at the Passover.*

Concerning the Pictures of the Jews, and Eastern Nations at their Feasts, concerning the gesture of our Saviour at the Passeeover, who is usually described sitting upon a stool or bench at a square table, in the midst of the twelve, many make great doubt; and (though they concede a table-gesture) will hardly allow this usuall way of Session.

Wherein restraining no mans enquiry, it will appear that accubation, or lying down at meales was a gesture used by very many Nations. That the Persians used it, beside the testimony of humane writers, is deducible from that passage in Esther. That when the King returned into the place of the banquet of wine, Haman was fallen upon the bed whereon Esther was. That the Parthians used it, is evident from Athenæus, who delivereth out of Possidonius, that their King lay down at meales, on an higher bed then others. That Cleopatra thus entertained Anthony, the same Authour manifesteth when he saith, she prepared twelve Tricliniums. That it was in use among the Greeks, the word Triclinium implieth, and the same is also declarable from many places in the Symposiacks of Plutarch. That it was not out of fashion in the daies of Aristotle, he declareth in his politicks; when among the Institutionary rules of youth, he adviseth they might not be permitted to hear

Iambicks and Tragedies before they were admitted unto discumbency or lying along with others at their meales. That the Romanes used this gesture at repast, beside many more is evident from Lipsius, Mercurialis, Salmasius and Ciaconius, who have expressly and distinctly treated hereof.

Now of their accumbing places, the one was called Stibadion and Sigma, carrying the figure of an half Moon, and of an uncertain capacity, whereafter it received the name of Hexaclinon, Octoclinon, according unto that of Martial,

Accipe Lunata scriptum testudine Sigma:

Octo capit; veniat quisquis amicus erit.

Hereat in severall ages the left and right horn were the principall places, and the most honourable person, if he were not master of the feast, possessed one of those roomes. The other was termed Triclinium, that is, Three beds encompassing a table, as may be seen in the figures thereof, and particularly in the Rhamnusian Triclinium, set down by Mercurialis. The customary use hereof was probably deduced from the frequent use of bathing, after which they commonly retired to bed, and relected themselves with repast; and so that custome by degrees changed their cubicular beds into discubitory, and introduced a fashion to goe from the bathes unto these.

As for their gesture or position, the men lay down leaning on their left elbow, their back being advanced by some pillow or soft substance; the second lay so with his back towards the first, that his head attained about his bosome; and the rest in the same order. For women, they sat sometimes distinctly with their sex, sometime promiscuously with men, according to affection or favour, as is delivered by Juvenal,

Gremio jacuit nova nupta mariti.

And by Suetonius of Caligula, that at his feasts he placed his sisters, with whom he had been incontinent, successively in order below him.

Again, As their beds were three, so the guests did not usually exceed that number in every one; according to the ancient Laws, and proverbiall observations to begin with the Graces, and make up their feasts with the Muses. And therefore it was remarkable in the Emperour Lucius Verus, that he lay down with twelve: which was, saith Julius Capitolinus, *prater exempla majorum*, not according to the custome of his Predecessors, except it were at publick and nuptiall suppers. The regular number was also exceeded in this last supper, whereat there were no lesse then thirteen, and in no place fewer then ten, for, as Josephus delivereth, it was not lawfull to celebrate the Passover, with fewer then that number.

Lastly, For the disposing and ordering of the persons: The first and middle beds were for the guests, the third and lowest for the Master of the house and his family; he alwaies lying in the first place of the last bed, that is, next the middle bed; but if the wife or children were absent, their rooms were supplied by the Umbræ, or hangers on, according to that of Juvenal — *Locus est & pluribus Umbris*. For the Guests, the honourablest place in every bed was the first, excepting the middle or second bed; wherein the most honourable Guest of the feast was placed in the last place, because by that position he might be next the Master of the feast. For the Master lying in the first of the last bed, and the principall Guest in the last place of the second, they must needs be next each other; as this figure doth plainly declare, and whereby we may apprehend the feast of *Perpenna* made unto Sertorius, described by Salustius, whose words we shall thus reade with Salmasius: *Igitur discubnere, Sertorius inferior in medio lecto, supra Fabius; Antonius in summo, Infra Scriba Sertorii Versius; alter scriba Macenas in Imo, medius inter Tarquitium & Dominum Perpennam.*

At

*Merc. De Arte
Gymnastica.*

The ancient ge-
sture or position of
the body at Feasts

Who the Umbræ
were at Banquets.

*Iul. Scalig. fa-
miliarium exer-
citationum Pro-
blema 1.*

[illegible]

At this feaft there were but feven; the middle places of the higheft and middle bed being vacant; and hereat was Sertorius the Generall and principall gueft flain; and fo may we make out what is delivered by Plutarch in his life, that lying on his back, and raifing himfelf up, Perpenna caft himfelf upon his ftomack; which he might very well doe being Mafter of the feaft, and lying next unto him. And thus alfo from this Tricliniary difpofure, we may illuftrate that obfcure expreffion of Seneca; That the Northwinde was in the middle, the North-Eaft on the higher fide, and the North-Weft on the lower. For as appeareth in the circle of the windes, the North-Eaft will anfwer the bed of Antonius, and the North-Weft that of Perpenna.

That the custome of feasting upon beds was in use among the Hebrews, many diduce from the 23. of Ezekiel. Thou satteſt upon a ſtately bed, and a table prepared before it. The cuſtome of Diſcalceation or putting off their ſhoes at meales, is conceived to confirm the ſame; as by that means keeping their beds clean, and therefore they had a peculiar charge to eat the Paſſe-over with their ſhoes on; which Injunſtion were needleſſe, if they uſed not to put them off. However it were in times of high antiquity, probable it is that in after ages they conformed unto the faſhions of the Aſſyrians and Eaſtern nations, and laſtly of the Romans, being reduced by Pompey unto a Provinciall ſubjection.

That this discumbency at meals was in use in the daies of our Saviour, is conceived probable from severall speeches of his expressed in that phrase, even unto common Auditors, as Luke 14. *Cum Invitatus fueris ad nuptias, non discumbas in primo loco*, and besides many more, Matthew 23. when reprehending the Scribes and Pharisees, he saith, *Amant protoclesias, id est, primos recubitus in cenis, & protocathedrias, sive primas cathedras, in Synagogis*: wherein the terms are very distinct, and by an Antithesis doe plainly distinguish the posture of sitting, from this of lying on beds. The consent of the Jews with the Romans in other ceremonies and rites of feasting, makes probable their conformity

Luk. 7.

Matth 22.

conformity in this. The Romans washed, were anointed and wore a cenatory garment: and that the same was practised by the Jews, is deduceable from that expostulation of our Saviour with Simon, that he washed not his feet, nor anointed his head with oyle; the common civilities at festivall entertainments: and that expression of his concerning the cenatory or wedding garment, and as some conceive of the linnen garment of the young man or St John; which might be the same he wore the night before, at the last Supper.

That they used this gesture at the Passeover, is more then probable from the testimony of Jewish writers, and particularly of Ben-maimon recorded by Scaliger *De emendatione temporum*. After the second cup according to the Institution, Exod. 12. The son asketh, what meaneth this service? Then he that maketh the declaracion saith, How different is this night from all other nights? for all other nights we wash but once, but this night twice; all other we eat leavened or unleavened bread, but this only leavened; all other we eat flesh roasted, boyled or baked, but this only roasted; all other nights we eat together lying or sitting, but this only lying along. And this posture they used as a token of rest and security which they enjoied, far different from that, at the eating of the Passeover in Egypt.

That this gesture was used when our Saviour eat the Passeover, is not conceived improbable from the words whereby the Evangelists expresse the same, that is, ἀναπίνειν, ἐναγεῖν, ἡγαγεῖν, ἀνακλιθῆναι, which terms doe properly signifie this gesture in Aristotle, Athenæus, Euripides, Sophocles, and all humane Authors; and the like we meet with in the paraphrastical expression of Nonnus.

Matth. 26.
John 13.

Lastly, If it be not fully conceded, that this gesture was used at the Passeover, yet that it was observed at the last supper, seems almost incontrovertible: for at this feast or cenatory convention, learned men make more then one supper, or at least many parts thereof. The first was that Legall one of the Passeover, or eating of the Paschall Lamb with bitter herbs, and ceremonies described by Moses. Of this it is said, that when the even was come he fate down with the twelve. This is supposed when it is said, that the Supper being ended, our Saviour arose, took a towell and washed the Disciples feet. The second was common and Domesticall, consisting of ordinary and undefined provisions; of this it may be said, that our Saviour took his garment, and fate down again, after he had washed the Disciples feet, and performed the preparative civilities of suppers; at this 'tis conceived the soppe was given unto Judas, the Originall word implying some broath or decoction, not used at the Passeover. The third or later part was Eucharisticall, which began at the breaking and blessing of the bread, according to that of Matthew, And as they were eating, Jesus took bread and blessed it.

De veterum ritibus.

Now although at the Passeover or first supper, many have doubted this Reclining posture, and some have affirmed that our Saviour stood; yet that he lay down at the other, the same men have acknowledged, as Chrysostome, Theophylact, Austin, and many more. And if the tradition will hold, the position is unquestionable; for the very Triclinium is to be seen at Rome, brought thither by Vespasian, and graphically set forth by Casalius.

Thus may it properly be made out; what is delivered Joh. 13. *Erat recumbens unus ex Discipulis ejus in sinu Jesu quem diligebat*; Now there was leaning on Jesus bosome one of his Disciples whom Jesus loved; which gesture will not so well agree unto the position of sitting, but is naturall, and cannot be avoided in the Laws of accubation. And the very same expression is to be found in Pliny, concerning the Emperour Nerva and Veiento whom he favoured;

favoured; *Cenabat Nerva cum paucis, Vciento recumbebat proprius atque etiam in sinu*; and from this custome arose the word *ἐν σπλάγχνῳ*, that is, a neer and bosome friend. And therefore Causabon justly rejecteth Theophylact, who not considering the ancient manner of decumbency, imputed this gesture of the beloved Disciple unto Rusticity, or an act of incivility. And thus also have some conceived, it may be more plainly made out what is delivered of Mary Magdalen, Luk.7. That she stood at Christs feet behinde him weeping, and began to wash his feet with tears, and did wipe them with the hairs of her head; which actions, if our Saviour sate, she could not perform standing, and had rather stood behinde his back, then at his feet. And therefore it is not allowable, what is observable in many pieces, and even of Raphael Urbin; wherein Mary Magdalen is pictured before our Saviour, washing his feet on her knees; which will not consist with the strict description and letter of the Text.

Not in Evang.

Now whereas this position may seem to be discountenanced by our Translation, which usuallly renders it sitting, it cannot have that illation; for the French and Italian Translations expressing neither position of session or recubation, doe only say that he placed himself at the table; and when ours expresseth the same by sitting, it is in relation unto our custome, time, and apprehension. The like upon occasion is not unusuall: so when it is said, Luk.4. *πλεξας τὸ βιβλίον*, and the Vulgar renders it, *Cum plicasset librum*, ours translateth it, he shut or closed the book; which is an expression proper unto the paginall books of our times, but not so agreeable unto volumes or rolling books in use among the Jews, not only in elder times, but even unto this day. So when it is said, the Samaritan delivered unto the host two pence for the provision of the Levite; and when our Saviour agreed with the Labourers for a peny a day; in strict translation it should be seven pence half peny; and is not to be conceived our common peny, the sixtieth part of an ounce. For the word in the Originall is *δηνάριον*, in Latine, *Denarius*, and with the Romans did value the eight part of an ounce, which after five shillings the ounce amounteth unto seven pence half peny of our money.

What Denarius, or the peny in the Gospel is.

Lastly, Whereas it might be conceived that they ate the Passeeover standing rather then sitting, or lying down, according to the Institution, Exod.12. Thus shall you eat, with your loins girded, your shoes on your feet, and your staff in your hand; the Jews themselves reply, this was not required of succeeding generations, and was not observed, but in the Passeeover of Ægypt. And so also many other injunctions were afterward omitted, as the taking up of the Paschall Lamb, from the tenth day, the eating of it in their houses dispersed; the striking of the bloud on the door posts, and the eating thereof in haste. Solemnities and Ceremonies primitively enjoined, afterward omitted; as was also this of station, for the occasion ceasing, and being in security, they applied themselves unto gestures in use among them.

Ceremonies of the Passeeover omitted.

Now in what order of recumbency Christ and the Disciples were disposed, is not so easily determined. Casalius from the Lateran Triclinium will tell us, that there being thirteen, five lay down in the first bed, five in the last, and three in the middle bed; and that our Saviour possessed the upper place thereof. That John lay in the same bed seems plain, because he leaned on our Saviours bosome. That Peter made the third in that bed, conjecture is made, because he beckned unto John, as being next him, to ask of Christ, who it was that should betray him. That Judas was not farre off seems probable, not only because he dipped in the same dish, but because he was so near, that our Saviour could hand the sop unto him.

CHAP. VII.

Of the Picture of our Saviour with long hair.

ANother Picture there is of our Saviour described with long hair, according to the custome of the Jews, and his description sent by Lentulus unto the Senate. Wherein indeed the hand of the Painter is not accusable, but the judgement of the common Spectator; conceiving he observed this fashion of his hair, because he was a Nazarite, and confounding a Nazarite by vow, with those by birth or education.

The Nazarite by vow is declared, Numb. 6. and was to refrain three things, drinking of Wine, cutting the hair, and approaching unto the dead; and such a one was Samson. Now that our Saviour was a Nazarite after this kinde, we have no reason to determine; for he drank Wine, and was therefore called by the Pharisees *ὁ ποτότης*, a Wine-bibber; he approached also the dead, as when he raised from death Lazarus, and the daughter of Jairus.

The other Nazarite was a Topicall appellation, and appliable unto such as were born in Nazareth, a City of Galilee, and in the Tribe of Naphtali. Neither if strictly taken was our Saviour in this sense a Nazarite; for he was born in Bethlehem in the Tribe of Judah; but might receive that name, because he abode in that City; and was not only conceived therein, but there also passed the silent part of his life, after his return from Egypt; as is delivered by Matthew, And he came and dwelt in a City called Nazareth, that it might be fulfilled which was spoken by the Prophet, He shall be called a Nazarene. Both which kindes of Nazarites, as they are distinguishable by Zain, and Tsade in the Hebrew, so in the Greek, by Alpha and Omega; for as Janfenius observeth, where the votary Nazarite is mentioned, it is written, *Ναζαρείτης*, as Levit. 6. and Lament. 4. where it is spoken of our Saviour, we reade it, *Ναζαρεθ*, as in Matthew, Luke and John; only Mark who writ his Gospel at Rome did Latinize and wrote it *Nazarenus*.

*Janf. concordia
Evangelica.*

CHAP. VIII.

Of the Picture of Abraham sacrificing Isaac.

IN the Picture of the Immolation of Isaac, or Abraham sacrificing his son, Isaac is described as a little boy; which notwithstanding is not consentaneous unto the authority of Expositors, or the circumstance of the Text. For therein it is delivered that Isaac carried on his back the wood for the sacrifice; which being an holocaust or burnt offering to be consumed unto ashes, we cannot well conceive the wood a burthen for a boy; but such a one unto Isaac, as that which it typified was unto Christ, that is, the wood or crosse whereon he suffered; which was too heavy a load for his shoulders, and was faine to be relieved therein by Simon of Cyrene.

Again, He was so farre from a boy, that he was a man grown, and at his full stature, if we beleve Josephus, who placeth him in the last of Adolescence, and makes him twenty five years old. And whereas in the Vulgar Translation he is termed *puer*, it must not be strictly apprehended (for that age properly

properly endeth in puberty, and extendeth but unto fourteen) but respectively unto Abraham, who was at that time above sixscore. And therefore also herein he was not unlike unto him, who was after led dumb unto the slaughter, and commanded by others, who had legions at command; that is, in meeknesse and humble submission; for had he resisted, it had not been in the power of his aged parent to have enforced; and many at his years have performed such acts, as few besides at any. David was too strong for a Lion and a Bear; Pompey had deserved the name of Great; Alexander of the same cognomination was Generalissimo of Greece; and Aniball but one year after, succeeded Asdruball in that memorable Warre against the Romans.

Men of eminent
fame and prowess
at 25. See Henry
prof. Montaigne
fitted to this purpose
Lib. 1. p. 178

CHAP. IX.

Of the Picture of Moses with hornes.

IN many pieces, and some of ancient Bibles, Moses is described with hornes. The same description we finde in a silver Medall; that is upon one side Moses horned, and on the reverse the commandment against sculptile Images. Which is conceived to be a coynage of some Jews, in derision of Christians, who first began that Pourtract.

The ground of this absurdity, was surely a mistake of the Hebrew Text, in the history of Moses when he descended from the Mount; upon the affinity of *Keren* and *Karan*, that is, an horn, and to shine, which is one quality of horn: the Vulgar Translation conforming unto the former. *Ignorabat quod cornuta esset facies ejus. Qui videbant faciem Moyses esse cornutam.* But the Chaldee paraphrase, translated by Paulus Fagius, hath otherwise expressed it. *Moses nesciebat quod multus esset splendor glorie vultus ejus. Et viderunt filii Israel quod multa esset claritas glorie faciei Moyses.* The expression of the Septuagint is as large, *δοξασαυ ἡ ὁψις τοῦ προσώπου τοῦ Μωϋσέως, Glorificatus est aspectus cutis, seu coloris faciei.*

Exo. 34. 29, 35.

And this passage of the old Testament, is well explained by another of the New; wherein it is delivered, that they could not stedfastly behold the face of Moses, *οὐκ ἔστιν ἔτι τὸ πρόσωπον;* that is, for the glory of his countenance. And surely the exposition of one Text is best performed by another; men vainly interposing their constructions, where the Scripture decideth the controversy. And therefore some have seemed too active in their expositions, who in the story of Rahab the harlot, have given notice that the word also signifieth an Hostesse; for in the Epistle to the Hebrews, she is plainly termed *πρῶν*, which signifies not an Hostesse, but a pecuniary and prostituting Harlot; a term applied unto Lais by the Greeks, and distinguished from *ἐρωεα*, or *amica*, as may appear in the thirteenth of Athenæus.

2 Corinth. 3.

What kinde of
Harlot she was,
reade Camar.
De vita Eliæ.

And therefore more allowable is the Translation of Tremellius, *Quod splendida facta esset cutis faciei ejus;* or rather as Estius hath interpreted it, *facies ejus erat radiosa*, his face was radiant, and dispersing beams like many hornes and cones about his head; which is also consonant unto the originall signification, and yet observed in the pieces of our Saviour, and the Virgin Mary, who are commonly drawn with scintillations, or radiant Halo's about their head; which after the French expression are usually termed, the Glory.

Now if besides this occasionall mistake, any man shall contend a propriety

Moses and Bac-
chus supposed to
be the same person
*De origine Ido-
latriz.*

in this picture, and that no injury is done unto Truth by this description, because an horn is the hieroglyphick of authority, power and dignity, and in this Metaphor is often used in Scripture; the piece I confesse in this acception is harmlesse and agreeable unto Moses: and under such emblematicall constructions, we finde that Alexander the Great, and Attila King of Hunnes, in ancient Medals are described with hornes. But if from the common mistake, or any solary consideration we persist in this description; we vilifie the mystery of the irradiation, and authorize a dangerous piece conformable unto that of Jupiter Hammon; which was the Sunne, and therefore described with hornes; as is delivered by Macrobius; *Hammonem quem Deum solem occidentem Lybies existimant, arietinis cornibus fingunt, quibus id animal valet, sicut radiis Sol.* We herein also imitate the picture of Pan, and Pagan emblem of Nature. And if (as Macorobius and very good Authors concede) Bacchus (who is also described with hornes) be the same Diety with the Sun; and if (as Vossius well contendeth) Moses and Bacchus were the same person; their descriptions must be relative, or the Tauricornous picture of the one, perhaps the same with the other.

CHAP. X.

Of the Scucheons of the Tribes of Israel.

Gen 49.

WE will not passe over the Scucheons of the tribes of Israel, as they are usually described in the Mappes of Canaan and severall other pieces; generally conceived to be the proper coats, and distinctive badges of their severall Tribes. So Reuben is conceived to bear three Barres wave, Judah a Lion Rampant, Dan a Serpent nowed, Simeon a sword in pale the point erected, &c. the ground whereof is the last Benediction of Jacob, wherein he respectively draweth comparisons from things here represented.

Now herein although we allow a considerable measure of truth, yet whether as they are usually described, these were the proper cognizances, and coat-arnes of the Tribes; whether in this manner applied, and upon the grounds presumed, materiall doubts remain.

Deut. 33.

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For first, They are not strictly made out, from the Propheticall blessing of Jacob; for Simeon and Levi have distinct coats, that is a Sword, and the two Tables; yet are they by Jacob included in one Prophecie, Simeon and Levi are brethren, Instruments of cruelties are in their habitations: So Joseph beareth an Ox, whereof notwithstanding there is no mention in this Prophecie; for therein it is said Joseph is a fruitfull bough, even a fruitfull bough by a well; by which repetion are intimated the two Tribes descending from him, Ephraim and Manasses; whereof notwithstanding Ephraim only beareth an Ox: True it is, that many years after in the benediction of Moses, it is said of Joseph, His glory is like the firstlings of his Bullock; and so we may concede, what Vossius learnedly declareth, that the Egyptians represented Joseph in the symbole of an Ox; for thereby was best implied the dream of Pharaoh, which he interpreted, the benefit by Agriculture, and provident provision of corn which he performed, and therefore did Serapis bear a bushell upon his head.

Again, If we take these two benedictions together, the resemblances are not appropriate, and Moses therein conforms not unto Jacob; for that which

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in the Propheſie of Jacob is appropriated unto one, is in the bleſſing of Moſes made common unto others. So whereas Judah is compared unto a Lion by Jacob, Judah is a Lions whelp; the ſame is applied unto Dan by Moſes, Dan is a Lions whelp, he ſhall leap from Baſhan: and alſo unto Gad; he dwelleth as a Lion.

Thirdly, If a Lion were the proper coat of Judah, yet were it not probably a Lion Rampant, as it is commonly deſcribed, but rather couchant or dormant, as ſome Heralds and Rabins doe determine; according to the letter of the Text, *Recumbens dormiſti ut Leo*, He couched as a Lion, and as a young Lion, Who ſhall rouse him?

Laſtly, When it is ſaid, Every man of the children of Iſrael ſhall pitch by his own ſtandard with the Enſigne of their fathers houſe; upon enquiry what theſe ſtandards and enſignes were there is no ſmall uncertainty; and men conform not unto the Propheſie of Jacob. Chriſtian Expositors are fain herein to rely upon the Rabbins, who notwithstanding are various in their traditions, and confirm not theſe common deſcriptions. For as for inferior enſignes, either of particular bands or houſes, they determine nothing at all, and of the four principle or Legionary ſtandards, that is, of Judah, Reuben, Ephraim, and Dan (under every one whereof marched three Tribes) they explain them very variously. Jonathan who compiled the Thargum, conceives the colours of theſe banners to answer the pretious ſtones in the breaſt-plate, and upon which the names of the Tribes were engraven. So the ſtandard for the camp of Judah, was of three colours according unto the ſtones, Chalcedony, Saphir, and Sardonyx; and therein were expreſſed the names of the three Tribes, Judah, Iſſachar, and Zabulon, and in the middeſt thereof was written, Rise up Lord, and let thy enemies be ſcattered, and let them that hate thee flee before thee; in it was alſo the pourtrait of a Lion. The ſtandard of Reuben was alſo of three colours, Sardine, Topaz, and Amethyſt; therein were expreſſed the names of Ruben, Simeon, and Gad, in the middeſt was written, Hear, O Iſrael, The Lord our God, the Lord is one: Therein was alſo the pourtraiture of a Hart. But Abenezra and others beſide the colours of the field, doe ſet down other charges, in Rubens the form of a man or mandrake, in that of Judah a Lion, in Ephraims an Ox, in Dan's the figure of an Ægle.

And thus indeed the four figures in the banners of the principall ſquadrons of Iſrael are answerable unto the Cherubins in the viſion of Ezechiel; every one carrying the forme of all theſe. As for the likenesse of their faces, they four had the likenesse of the face of a Man, and the face of a Lion on the right ſide, and they four had the face of an Ox on the left ſide, they four had alſo the face of an Ægle. And conformable hereunto the pictures of the Evangelists (whoſe Gospels are the Chriſtian banners) are ſet forth with the addition of a Man or Angel, an Ox, a Lion, and an Ægle. And theſe ſymbolically represent the office of Angels, and Miniſters of Gods will; in whom is required underſtanding as in a Man, courage and vivacity as in the Lion, ſervice and miniſteriall officiouſneſſe, as in the Ox, expedition or celerity of execution, as in the Ægle.

From hence therefore we may obſerve that theſe deſcriptions the moſt authentick of any, are neither agreeable unto one another, nor unto the Scutcheons in queſtion. For though they agree in Ephraim and Judah, that is, the Ox and the Lion, yet doe they differ in thoſe of Dan, and Ruben, as farre as an Ægle is different from a Serpent, and the figure of a Man, Hart, or Mandrake, from three Barres wave. Wherein notwithstanding we rather declare the uncertainty of Armes in this particular, then any way queſtion their antiquity;

Numb. 2.

The like alſo
P. Fagius upon
the Thargum
or Chaldie Pa-
raphraſe of On-
kelus. Numb. 2.

Numb. 10.

Deut 6.

Ezek. 1.

The common Pi-
ctures of the 4.
Evangelists expli-
cated.

The Antiquity of
bearing Scutche-
ons.

Recius de cele-
sti Agricultura.
lib. 4.

tiquity; for hereof more ancient examples there are, then the Scutcheons of the Tribes, if Osyris, Mizraim or Jupiter the Just, were the son of Cham; for of his two sons, as Diodorus delivereth, the one for his Device gave a Dog, the other a Wolfe; and, beside the shield of Achilles, and many ancient Greeks; if we receive the conjecture of Vossius, that the Crow upon Corvinus his head, was but the figure of that Animall upon his helmet, it is an example of Antiquity among the Romans.

But more widely must we walk, if we follow the doctrine of the Cabalists, who in each of the four banners inscribe a letter of the Tetragrammaton or quadriliterall name of God: and mysterizing their ensignes, doe make the particular ones of the twelve Tribes, accommodable unto the twelve signes in the Zodiack, and twelve moneths in the year: But the Tetrarchicall or general banners, of Judah, Ruben, Ephraim and Dan, unto the signes of Aries, Cancer, Libra and Capricornus; that is the four cardinall parts of the Zodiack, and seasons of the year.

CHAP. XI.

Of the Pictures of the Sibyls.

See fol. 179. of number of
wise men of Greece con-
sidered. 80 of the Planets.

THE Pictures of the Sibyls are very common, and for their Prophecies of Christ in high esteem with Christians; described commonly with youth-faces, and in a defined number; common pieces making twelve, and many precisely ten, observing therein the account of learned Varro; that is, Sibylla Delphica, Erythraea, Samia, Cumana, Cumæa, or Cimmeria, Hellestontica, Lybica, Phrygia, Tiburtina, Persica. In which enumeration I perceive learned men are not satisfied, and many conclude an irreconcilable uncertainty; some making more, others fewer, and not this certain number. For Suidas though he affirm that in divers ages there were ten, yet the same denomination he affordeth unto more; Boyfardus in his Tract of Divination hath set forth the Icons of these Ten, yet addeth two others, Epirotica, and Ægyptia; and some affirm that Prophefying women were generally named Sibyls.

Others make them fewer: Martianus Capella two; Pliny and Solinus three; Ælian four; and Salmatius in effect but seven. For discoursing hereof in his Plinian Exercitations, he thus determineth; *Ridere licet hodiernos Pictores, qui tabulas proponunt Cumana, Cumæa, & Erythraea, quasi trium diversarum Sibyllarum; cum una eademque fuerit Cumana, Cumæa, & Erythraea, ex plurimum & doctissimorum Authorum sententia.* Boyfardus gives us leave to opinion there was no more then one; for so doth he conclude, *In tantâ Scriptorum varietate liberum relinquimus Lectori credere, an una & eadem in diversis regionibus peregrinata, cognomen sortita sit ab iis locis ubi oracula reddidisse comperitur, an plures extiterint:* And therefore not discovering a resolution of their number from pens of the best Writers, we have no reason to determine the same from the hand and pencill of Painters.

As touching their age, that they are generally described as young women, History will not allow; for the Sibyll whereof Virgill speaketh is termed by him *longeva sacerdos*, and Servius in his Comment amplifieth the same. The other that sold the books unto Tarquin, and whose History is plainer then any, by Livie and Gellius is termed *Anus*; that is properly no woman of ordinary age, but full of years, and in the daies of dotage, according to the Etymo-

Anus, quasi
Avis, sine mentē.

logy

logy of Festus; and consonant unto the History; wherein it is said, that Tarquine thought she doted with old age. Which duly perpended, the *Licentia pictoria* is very large; with the same reason they may delineate old Nestor like Adonis, Hecuba with Helens face, and Time with Absolons head; but this absurdity that eminent artist Michael Angelo hath avoided, in the Pictures of the Cumean and Persian Sibylls, as they stand described from the printed sculptures of Adam Mantuanus.

CHAP. XII.

Of the Picture describing the death of Cleopatra.

THE Picture concerning the death of Cleopatra with two Aspes or venomous Serpents unto her arms, or breasts, or both, requires consideration: for therein (beside that this variety is not excusable) the thing it self is questionable; nor is it indisputably certain what manner of death she died. Plutarch in the life of Antonie plainly delivereth, that no man knew the manner of her death; for some affirmed she perished by poison, which she alwaies carried in a little hollow combe, and wore it in her hair. Beside, there were never any Aspes discovered in the place of her death, although two of her maids perished also with her; only it was said, two small and almost insensible pricks were found upon her arm; which was all the ground that Caesar had to presume the manner of her death. Galen who was contemporary unto Plutarch, delivereth two waies of her death: that she killed her self by the bite of an Aspe, or bit an hole in her arm, and poured poison therein. Strabo that lived before them both, hath also two opinions; that she died by the bite of an Aspe, or else a poisonous ointment.

We might question the length of the Aspes, which are sometimes described exceeding short; whereas the Chersæa or land-Aspe which most conceive she used, is above four cubits long. Their number is not unquestionable; for whereas there are generally two described, Augustus (as Plutarch relateth) did carry in his triumph the Image of Cleopatra but with one Aspe unto her arm. As for the two pricks, or little spots in her arm, they rather infer the sex, then plurality: for like the Viper, the female Aspe hath four, but the male two teeth; whereby it left this impression, or double puncture behinde it.

And lastly, We might question the place; for some apply them unto her breast, which notwithstanding will not consist with the history; and Petrus Victorius hath well observed the same. But herein the mistake was easie; it being the custome in capitall malefactors to apply them unto the breast, as the Author *De Theriaca ad Pisonem*, an eye witnesse hereof in Alexandria, where Cleopatra died, determineth: I beheld, saith he, in Alexandria, how suddenly these Serpents bereave a man of life; for when any one is condemned to this kinde of death, if they intend to use him favourably, that is, to dispatch him suddenly, they fasten an Aspe unto his breast; and bidding him walk about, he presently perisheth thereby.

149.

in the Hippocrate, lib. 193.

149.

CHAP. XIII.

Of the Pictures of the Nine Worthies.

THE Pictures of the nine Worthies are not unquestionable, and to critical spectators may seem to contain sundry improprieties. Some will enquire why Alexander the Great is described upon an Elephant: for, we doe not finde he used that animall in his Armies, much lesse in his own person; but his Horse is famous in History, and its name alive to this day. Beside, he fought but one remarkable battell, wherein there were any Elephants, and that was with Porus King of India; in which notwithstanding, as Curtius, Arrianus, and Plutarch report, he was on horseback himself. And if because he fought against Elephants, he is with propriety set upon their backs; with no lesse or greater reason is the same description agreeable unto Judas Maccabeus, as may be observed from the history of the Maccabees; and also unto Julius Caesar, whose triumph was honoured with captive Elephants, as may be observed in the order thereof, set forth by *Jacobus Laurus*. And if also we should admit this description upon an Elephant, yet were not the manner thereof unquestionable, that is, in his ruling the beast alone; for, beside the Champion upon their back, there was also a guide or ruler, which sate more forward to command or guide the beast. Thus did King Porus ride when he was overthrown by Alexander; and thus are also the towred Elephants described, Maccab. 2.6. Upon the beasts there were strong towres of wood, which covered every one of them, and were girt fast unto them by devices; there were also upon every one of them thirty two strong men, beside the Indian that ruled them.

Others will demand, not only why Alexander upon an Elephant, but Hector upon an Horse; whereas his manner of fighting, or presenting himself in battel, was in a Chariot, as did the other noble Trojans, who as Pliny affirmeth were the first inventers thereof; the same way of fight is testified by Diodorus, and thus delivered by *S^r Walter Rawleigh*. Of the vulgar little reckoning was made, for they fought all on foot, slightly armed, and commonly followed the successe of their Captains; who rode not upon Horses, but in Chariots drawn by two or three Horses; and this was also the ancient way of fight among the Britains, as is delivered by Diodorus, Caesar, and Tacitus; and there want not some who have taken advantage hereof, and made it one argument of their originall from Troy.

Lastly, By any man versed in Antiquity, the question can hardly be avoided, why the Horses of these Worthies, especially of Caesar, are described with the furniture of great saddles, and stirrops? for saddles largely taken, though some defence there may be, yet that they had not the use of stirrops, seemeth out of doubt; as *Pancirollus* hath observed, as *Polydore Virgil*, and *Petrus Victorius* have confirmed, expressly discoursing hereon; as is observable from Pliny, and cannot escape our eyes in the ancient monuments, medals and Triumphant arches of the Romanes. Nor is there any genuine or classick word in Latin to expresse them; for *staphia* or *stapes* is not to be found in Authors of Antiquity. And whereas the name might promise some Antiquity, because among the three small bones in the Auditory Organ, or Physitians termed *Incus*, *Malleus* and *stapes*, one thereof from some resemblance doth bear this name; these bones were not observed, much lesse named by Hippocrates, Galen or any ancient Physitian. But as *Laurentius* observeth concerning the invention

*In splendore
urbis Antiquae.*

*Da inventionem
rerum, varie
lectiones.
The use of stirrops
not ancient.*

invention of the stapes or stirrop bone, there is some contention between *Columbus* and *Ingrassias*; the one of Sicilia, the other of Cremona, and both within the compasse of this Century.

The same is also deduceable from very approved Authors: Polybius speaking of the way which Aniball marched into Italy, useth the word *βενιπιδνται*, that is faith Petrus Victorius, it was stored with devices for men to get upon their horses; which ascents were termed *Bemata*; and in the life of Caius Gracchus, Plutarch expresth as much. For endeavouring to ingratiate himself with the people, besides the placing of stones at every miles end; he made at nearer distances certain elevated places, and Scalary ascents, that by the help thereof they might with better ease ascend or mount their horses. Now if we demand how Cavaliers then destitute of stirrops did usually mount their horses; Vegetius resolves us, that they used to vault or leape up, and therefore they had wooden horses in their houses and abroad; that thereby young men might enable themselves in this action; wherein by instruction and practice they grew so perfect, that they could vault up on the right or left, and that with their sword in hand, according to that of Virgil

De re Milit.

*Poscit equos atque arma simul, saltuq; superbus
Emicat.* And again:

*Infrenant alii currus & corpora saltu
Injiciunt in equos.*

So Julius Pollux adviseth to teach horses to incline, dimit, and bow down their bodies, that their riders may with better ease ascend them. And thus may it more causally be made out, what Hippocrates affirmeth of the Scythians, that using continuall riding, they were generally molested with the Sciatika or hip-gowt; or what Suetonius delivereth of Germanicus, that he had slender legs, but encreased them by riding after meals; that is, the humours descending upon their pendulosity, they having no support or suppedaneous stability.

Now if any shall say that these are petty errors and minor lapses, not considerably injurious unto truth, yet is it neither reasonable nor safe to condemn inferior falsities; but rather as between falshood and truth, there is no medium, so should they be maintained in their distances; nor the contagion of the one, approach the sincerity of the other.

CHAP. XIV.

Of the Picture of Jephthah sacrificing his daughter.

THE hand of the Painter confidently setteth forth the Picture of Jephthah in the posture of Abraham, sacrificing his only daughter; Thus is it commonly received, and hath had the attest of many worthy Writers. Notwithstanding upon enquiry we finde the matter doubtfull, and many upon probable grounds to have been of another opinion; conceiving in this oblation not a naturall but a civil kinde of death, and a separation only unto the Lord. For that he pursued not his vow unto a literall oblation, there want not arguments both from the Text and reason.

For first, It is evident that she deplored her Virginity, and not her death; Let me go up and down the mountains, and bewaile my Virginity, I and my fellows.

Secondly, When it is said, that Jephthah did unto her according unto his
vow;

That Jephthah
did not kill his
daughter.
Judg. 11. 39.

vow, it is immediatly subjoined, *Et non cognovit virum*, and she knew no man; which as immediate in words, was probably most neer in sense unto the vow.

Thirdly, It is said in the Text, that the daughters of Israel went yearly to talk with the daughter of Jephthah four daies in the year; which had she been sacrificed, they could not have done; For whereas the word is sometime translated to lament, yet doth it also signifie to talk or have conference with one, and by Tremellius who was well able to judge of the Originall, it is in this sense translated: *Ibant filii Israelitarum, ad confabulandum cum filia Jephthaci, quatuor diebus quotannis*: And so it is also set down in the marginall notes of our Translation. And from this annuall concourse of the daughters of Israel, it is not improbable in future Ages, the daughter of Jephthah came to be worshipped as a Deity; and had by the Samaritans an annuall festivity observed unto her honour, as Epiphanius hath left recorded in the heresie of the Melchidecians.

It is also repugnant unto reason; for the offering of mankinde was against the Law of God, who so abhorred humane sacrifice, that he admitted not the oblation of unclean beasts, and confined his altars but unto few kindes of Animals, the Ox, the Goat, the Sheep, the Pigeon and its kindes: In the cleansing of the leper, there is I confesse, mention made of the Sparrow, but great dispute may be made whether it be properly rendred. And therefore the Scripture with indignation oft times makes mention of humane sacrifice among the Gentiles; whose oblations scarce made scruple of any Animall; sacrificing not only man, but Horses, Lions, Eagles; and though they come not into holocausts, yet doe we reade the Syrians did make oblations of fishes unto the goddesse Derceto. It being therefore a sacrifice so abominable unto God, although he had pursued it, it is not probable the Priests and wisdom of Israel would have permitted it; and that not only in regard of the subject or sacrifice it self, but also the sacrificator, which the Picture makes to be Jephthah; who was neither Priest, nor capable of that office; for he was a Gileadite, and as the text affirmeth, the son also of an harlot; And how hardly the Priesthood would endure encroachment upon their function, a notable example there is in the story of Ozias.

Secondly, The offering up of his daughter was not only unlawfull, and entrenched upon his Religion, but had been a course that had much condemned his discretion; that is, to have punished himself in the strictest observance of his vow, when as the Law of God had allowed an evasion; that is, by way of commutation or redemption, according as is determined, Levit. 27: whereby if she were between the age of five and twenty, she was to be estimated but at ten shekels, and if between twenty and sixty, not above thirty; a summe that could never discourage an indulgent Parent; it being but the value of a servant slain; the inconsiderable Salary of Judas; and will make no greater noise then three poynd fifteen shillings with us. And therefore their conceit is not to be exploded, who say that from the story of Jephthah sacrificing his own daughter, might spring the fable of Agamemnon, delivering unto sacrifice his daughter Iphigenia, who was also contemporary unto Jephthah; wherein to answer the ground that hinted it, Iphigenia was not sacrificed her self, but redeemed with an Hart, which Diana accepted for her.

Lastly, Although his vow run generally for the words, Whatsoever shall come forth, &c. yet might it be restrained in the sense, for whatsoever was sacrificable, and justly subject to lawfull immolation: and so would not have sacrificed either Horse or Dog, if they had come out upon him. Nor was he obliged

obliged by oath unto a strict observation of that which promissorily was unlawful; or could he be qualified by vow to commit a fact which naturally was abominable. Which doctrine had Herod understood, it might have saved John Baptists head; when he promised by oath to give unto Herodias whatsoever she would ask; that is, if it were in the compasse of things, which he could lawfully grant. For his oath made not that lawfull which was illegall before: and if it were unjust to murder John, the supervenient oath did not extenuate the fact, or oblige the Jurer unto it.

Now the ground at least which much promoted the opinion, might be the dubious words of the text, which contain the sense of his vow; most men adhering unto their common and obvious acception. Whatsoever shall come forth of the doors of my house shall surely be the Lords, and I will offer it up for a burnt offering. Now whereas it is said, *Erit Jehovah, & offeram illud holocaustum*, The word signifying both & and *aut*, it may be taken disjunctively; *aut offeram*, that is, it shall either be the Lords by separation, or else, an holocaust by common oblation; even as our marginall translation advertiseth; and as Tremellius rendreth it, *Erit inquam Jehovah, aut offeram illud holocaustum*: and for the vulgar translation, it useth often &, where *aut* must be presumed, as Exod. 21. *Si quis percusserit patrem & matrem*, that is, not both, but either. There being therefore two waies to dispose of her, either to separate her unto the Lord, or offer her as a sacrifice, it is of no necessity the later should be necessary; and surely lesse derogatory unto the sacred text, and history of the people of God, must be the former.

CHAP. XV.

Of the Picture of John the Baptist.

THE Picture of John the Baptist, in a Camels skin is very questionable, and many I perceive have condemned it. The ground or occasion of this description are the words of the holy Scripture, especially of Matthew and Mark, for Luke and John are silent herein; by them it is delivered, his garment was of Camels hair, and had a leathern girdle about his loines. Now here it seems the Camels hair is taken by Painters for the skinne or pelt with the hair upon it: But this exposition will not so well consist with the strict acception of the words; for Mark 1. It is said, he was *ἐνδεδυμένος τριχὺς καμήλου*, and Matthew 3. *εἶχε τὸ ἔνδυμα αὐτοῦ τριχὺν καμήλου*, that is, as the vulgar translation, that of Beza, that of Sixtus Quintus, and Clement the eight hath rendred it, *vestimentum habebat e pilis camelinis*; which is as ours translateth it, a garment of Camels hair; that is, made of some texture of that hair, a course garment, a cilicious or sackcloth habit; futable to the austerity of his life; the severity of his Doctrine, Repentance; and the place thereof, the wilderness, his food and diet, locusts and wilde hony; agreeable unto the example of Elias, who 2 Kings 1.8. is said to be *vir pilosus*, that is, as Junius and Tremellius interpret, *Veste villosa cinctus*; answerable unto the habit of the ancient Prophets, according to that of Zachary 13. In that day the Prophets shall be ashamed, neither shall they wear a rough garment to deceive; and futable to the Cilicious and hairy Vests of the strictest Orders of Friars, who derive the institution of their Monastick life from the example of John and Elias.

As for the wearing of skinnes, where that is properly intended, the ex-

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pression

pression of the Scripture is plain, so is it said, Heb. 11. they wandred about *ἐν γυρίαις δερμάτων*, that is, in Goats skinnies; and so it is said of our first Parents, Gen. 3. that God made them *χιτῶνας δερματίνους Vestes pelliceas*, or coats of skinnies; which though a naturall habit unto all, before the invention of Texture, was something more unto Adam, who had newly learned to die; for unto him a garment from the dead, was but a dictate of death, and an habit of mortality.

Now if any man will say this habit of John, was neither of Camels skinne, nor any course Texture of its hair, but rather some finer weave of Camelot, Grograine or the like, in as much as these stufes are supposed to be made of the hair of that Animall, or because that Ælian affirmeth, that Camels hair of Persia, is as fine as Milesian wooll, wherewith the great ones of that place were clothed; they have discovered an habit, not only unsuitable unto his leathern cincture, and the cournesse of his life; but not consistent with the words of our Saviour, when reasoning with the people concerning John, he saith; What went you out into the wilderness to see? a man clothed in soft raiment? Behold they that wear soft raiment are in Kings houses.

CHAP. XVI.

Of the Picture of S^t Christopher.

THe Picture of S^t Christopher, that is, a man of a Giantlike stature, bearing upon his shoulders our Saviour Christ, and with a staff in his hand, wading thorow the water, is known unto children, common over all Europe, not only as a sign unto houses, but is described in many Churches, and stands Colossus like in the entrance of *Nostre Dame in Paris*.

Now from hence, common eyes conceive an history suitable unto this description, that he carried our Saviour in his Minority over some river or water; which notwithstanding we cannot at all make out. For we reade not thus much in any good Author, nor of any remarkable Christopher, before the reign of Decius; who lived 250 years after Christ. This man indeed according unto History suffered as a Martyr in the second year of that Emperour, and in the Roman Calender takes up the 21 of July.

The ground that begat or promoted this opinion was, first the fabulous adjections of succeeding ages, unto the veritable acts of this Martyr, who in the most probable accounts was remarkable for his staff, and a man of a goodly stature.

The second might be a mistake or misapprehension of the Picture; most men conceiving that an History which was contrived at first but as an Emblem or Symbolicall fancy; as from the Annotations of Baronius upon the Roman Martyrology, Lipellous in the life of S^t Christopher hath observed in these words; *Acta S. Christophori à multis depravata inveniuntur; quod quidem non aliunde originem sumpsisse certum est, quam quod Symbolicas figuras imperiti ad veritatem successu temporis transtulerint; itaq; cuncta illa de Sancto Christophoro pingi consueva, Symbola potius, quam historie alicujus existimandum est esse expressam imaginem*; that is, The acts of S^t Christopher are depraved by many: which surely began from no other ground, then, that in proceffe of time, unskilfull men translated symbolicall figures unto reall verities: and therefore what is usually described in the Picture of S^t Christopher, is rather to be received

ceived as an Emblem, or Symbolicall description, then any reall History. Now what Emblem this was, or what its signification, conjectures are many; Pierius hath set down one, that is, of the Disciple of Christ; for he that will carry Christ upon his shoulders, must relie upon the staffe of his direction, whereon if he firmeth himself, he may be able to overcome the billows of resistance, and in the vertue of this staffe, like that of Jacob, passe over the waters of Jordan. Or otherwise thus; He that will submit his shoulders unto Christ, shall by the concurrence of his power encrease into the strength of a Giant; and being supported by the staffe of his holy Spirit, shall not be overwhelmed by the waves of the world, but wade through all resistance.

CHAP. XVII.

Of the Picture of S^t George.

THE Picture of S^t George killing the Dragon, and, as most ancient draughts doe run, with the daughter of a King standing by, is famous amongst Christians; and upon this description dependeth a solemne story, how by this achievement he redeemed a Kings daughter; which is more especially beleevd by the English, whose Protectour he is; and in which form and history, according to his description in the English Colledge at Rome, he is set forth in the Icons or Cuts of Martyrs by Cevallerius; and all this according to the *Historia Lombardica*, or golden legend of Jacobus de Voragine. Now of what authority soever this Piece be amongst us, it is I perceive received with different beliefs: for some beleev the person and the story; some the person, but not the story; and others deny both.

That such a person there was, we shall not contend: for besides others, Dr Heilin hath clearly asserted it in his History of S^t George. The indistinction of many in the community of name, or the misapplication of the act of one unto another, hath made some doubt thereof; For of this name we meet with more then one in history, and no lesse then two conceived of Cappadocia; the one an Arrian, who was slain by the Alexandrians in the time of Julian; the other a valiant Souldier and Christian Martyr, beheaded in the reign of Dioclesian. This is the George conceived in this Picture, who hath his day in the Roman Calender, on whom so many fables are delivered, whose story is set forth by Metaphrastes, and his miracles by Turonensis.

As for the story depending hereon, some conceive as lightly thereof, as of that of Perseus and Andromeda; conjecturing the one to be the father of the other; and some too highly assert it. Others with better moderation, doe entertain the same as a fabulous addition unto the true and authentick story of S^t George; or else conceive the literall acception to be a misconstruction of the symbolicall expression; apprehending a veritable history, in an Emblem or piece of Christian Poesie. And this Emblematicall construction hath been received by men not forward to extenuate the acts of Saints; as from Baronius, Lipellous the Carthasian hath delivered in the life of S^t George; *Picturam illam S. Georgij quâ effingitur eques armatus, qui hasta cuspide hostem interficit, juxta quam etiam virgo posita manus supplices tendens ejus explorat auxilium; Symboli potius quam historia alicujus censenda expressa Imago. Consuevit quidem ut equestris militia miles equestri imagine referri*: that is, The Picture of S^t George, wherein he is described like a Curassier or horseman compleatly armed, &c. is rather a symbolicall image, then any proper figure.

Now in the picture of this Saint and Souldier, might be implied the Christian Souldier and true Champion of Christ. A horsman armed *Cap a pe*, intimating the Panoplia or compleat armour of a Christian; combating with the Dragon, that is, with the Divil; in defence of the Kings daughter, that is the Church of God. And therefore although the history be not made out, it doth not disparage the Knights and Noble order of S^t George; whose cognisance is honourable in the Emblem of the Souldier of Christ; and is a worthy memoriall to conform unto its mystery. Nor, were there no such person at all, had they more reason to be ashamed, then the Noble order of Burgundy, and Knights of the golden Fleece; whose badge is a confessed fable.

507. *Enq. 107.*

CHAP. XVIII.

Of the Picture of Jerome.

THE Picture of Jerome usually described at his study, with a Clock hanging by, is not to be omitted; for though the meaning be allowable, and probable it is that industrious Father did not let slip his time without account; yet must not perhaps that Clock be set down to have been his measure thereof. For Clocks or Automatous organs, whereby we now distinguish of time, have found no mention in any ancient Writers; but are of late invention, as Pancirollus observeth; and Polydore Virgil discoursing of new inventions whereof the authors are not known, makes instance in Clocks and Guns. Now Jerome is no late Writer, but one of the ancient Fathers, and lived in the fourth Century, in the reign of Theodosius the first.

It is not to be denied that before the daies of Jerome there were Horologies, and severall accounts of time; for they measured the hours not only by drops of water in glasses called Clepsydra, but also by sand in glasses called Clepsamania. There were also from great antiquity, Sciotericall or Sun Dialls, by the shadow of a stile or gnomon denoting the hours of the day: an invention ascribed unto Anaximenes by Pliny. Hereof a memorable one there was in Campus Martius, from an obelisk erected, and golden figures placed horizontally about it; which was brought out of Ægypt by Augustus, and described by Jacobus Laurus. And another of great antiquity we meet with in the story of Ezechias; for so it is delivered in King. 2. 2c. That the Lord brought the shadow backward ten degrees, by which it had gone down in the Diall of Ahaz. That is, say some, ten degrees, not lines; for the hours were denoted by certain divisions or steps in the Diall, which others distinguished by lines, according to that of Persius

Sertimus indomitum quod despumare Falernum

Sufficiat, quintâ dum linea tangitur umbrâ.

That is, the line next the Meridian, or within an hour of noon.

Of later years there succeeded new inventions, and horologies composed by Trochilick or the artifice of wheelles; whereof some are kept in motion by weight, others performe without it. Now as one age instructs another, and time that brings all things to ruine perfects also every thing; so are these indeed of more generall and ready use then any that went before him. By the Water-glasses the account was not regular; for from attenuation and condensation, whereby that Element is altered, the hours were shorter in hot weather then in cold, and in Summer then in Winter. As for Sciotericall Dialls, whether of the Sunne or Moon, they are only of use in the actual radiation of those

Clocks no very ancient Invention.

A peculiar description and particular construction hereof out of R. Chomer, is let down. *Curios de Cassarel. cap 9.*

Doctrine of circular motions.

those Luminaries; and are of little advantage unto those inhabitants, which for many moneths enjoy not the Lustre of the Sunne.

It is I confesse no easie wonder how the horometry of Antiquity discovered not this Artifice; how Architas that contrived the moving Dove, or rather the Helicosophie of Archimedes, fell not upon this way. Surely as in many things, so in this particular, the present age hath farre surpassed Antiquity; whose ingenuity hath been so bold not only to proceed, below the account of minutes; but to attempt perpetuall motions, and engines whose revolutions (could their substance answer the designe) might outlast the exemplary mobility, and outmeasure time it self. For such a one is that mentioned by John Dee, whose words are these in his learned Preface unto Euclide: By Wheelles strange works and incredible are done: A wondrous example was seen in my time in a certain Instrument, which by the Inventaer and Artificer was sold for twenty talents of gold; and then by chance had received some injury, and one Janellus of Crenona did mend the same, and presented it unto the Emperour Charles the fift. Jeronymus Cardanus, can be my witnesse, that therein was one weele that moved in such a rate, that in seven thousand years only his own period should be finished; a thing almost incredible, but how far I keep within my bounds, many men yet alive can tell.

CHAP. XIX.

Of the Pictures of Mermaids, Vnicornes, and some others.

FEW eyes have escaped the Picture of Mermaids; that is, according to Horace his Monster, with womans head above, and fishy extremity below: and this is conceived to answer the shape of the ancient Syrens that attempted upon Ulysses. Which notwithstanding were of another description, containing no fishy composure, but made up of Man and Bird; the humane mediety variously placed not only above but below; according unto Ælian, Suidas, Servius, Boccatus, and Aldrovandus, who hath referred their description unto the story of fabulous birds; according to the description of Ovid, and the account thereof in Hyginus, that they were the daughters of Melpomene, and metamorphosed into the shape of man and bird by Ceres.

And therefore these pieces so common among us, doe rather derive their originall, or are indeed the very descriptions of Dagon; which was made with humane figure above, and fishy shape below; whose stump, or as Tremellius and our margin renders it, whose fishy part only remained, when the hands and upper part fell before the Arke. Of the shape of Atergates, or Derceto with the Phanicæans; in whose fishy and feminine mixture, as some conceive, were implied the Moon and the Sea, or the Deity of the waters; and therefore, in their sacrifices they made oblations of fishes: from whence were probably occasioned the pictures of Nereides and Tritons among the Grecians, and such as we read in Macrobius, to have been placed on the top of the temple of Saturne.

We are unwilling to question the Royall supporters of England, that is, the approved descriptions of the Lion and the Unicorn. Although, if in the Lion the position of the pizell be proper, and that the naturall situation; it will be hard to make out their retrocopulation, or their coupling and pissing backward, according to the determination of Aristotle; All that urine backward do copulate πρὸνδρ, *clunatim*, or averfly, as Lions, Hares, Linxes.

Distinctio prima, naturalis forma supra

Dagon the Idol,
of what forme,

1 Sam. 5.

As for the Unicorne, if it have the head of a Deer, and the taile of a Boar, as Vartomannus describeth it; how agreeable it is in this picture every eye may discern. If it be made bisulcous or cloven footed, it agreeth unto the description of Vartomannus, but scarce of any other; and Aristotle supposeth that such as divide the hoof, doe also double the horn; they being both of the same nature, and admitting division together. And lastly, if the horn have this situation, and be so forwardly affixed, as is described, it will not be easily conceived, how it can feed from the ground; and therefore we observe, that Nature in other cornigerous animals, hath placed the horns higher and reclining, as in Bucks; in some inverted upwards, as in the Rhinoceros; the Indian Asse, and Unicornous Beetles; and thus have some affirmed it is seated in this animall.

We cannot but observe that in the Picture of Jonah and others, Whales are described with two prominent spouts on their heads; whereas indeed they have but one in the forehead, and terminating over the windepipe. Nor can we overlook the Picture of Elephants with Castles on their backs, made in the forme of land Castles, or stationary fortifications, and answerable unto the Armes of Castile, or St John Old Castle; whereas the towres they bore, were made of wood, and girt unto their bodies; as is delivered in the books of Maccabees, and as they were appointed in the Army of Antiochus.

We will not dispute the Pictures of Telary Spiders, and their position in the web, which is commonly made laterall, and regarding the Horizon; although, if it be observed, we shall commonly finde it downward, and their heads respecting the Center. We will not controvert the Picture of the seven Starres; although if thereby be meant the Pleiades, or subconstellation upon the back of Taurus, with what congruity they are described, either in site or magnitude, in a clear night an ordinary eye may discover, from July unto Aprill. We will not question the tongues of Adders and Vipers, described like an Anchor; nor the Picture of the Flower *de Luce*; though how farre they agree unto their naturall draughts, let every Spectator determine.

Whether the Cherubims about the Ark be rightly described in the common Picture, that is, only in humane heads, with two wings; or rather in the shape of Angels or young men, or somewhat at least with feet, as the Scripture seems to imply. Whether the Crosse seen in the air by Constantine, were of that figure wherein we represent it; or rather made out of X and P the two first letters of *Χριστος*. Whether the Crosse of Christ did answer the common figure; whether so farre advanced above his head; whether the feet were so disposed, that is, one upon another, or separately nailed, as some with reason describe it; we shall not at all contend. Much lesse whether the house of Diogenes were a Tub framed of wood, and after the manner of ours; or rather made of earth, as learned men conceive, and so more clearly make out that expression of Juvenal. We should be too criticall to question the letter Y, or bicornous element of Pythagoras, that is, the making of the hornes equall: or the left lesse then the right, and so destroying the symbollicall intent of the figure; confounding the narrow line of vertue, with the larger roade of vice; answerable unto the narrow door of heaven, and the ample gates of hell, expressed by our Saviour, and not forgotten by Homer, in that Epithete of Pluto's house.

Many more there are whereof our pen shall take no notice, nor shall we urge their enquiry; we shall not enlarge with what incongruity, and how dissenting from the pieces of Antiquity, the Pictures of their gods and goddesses

Unicorn. 136.

Where the seven
Starres be situ-
ated.

2 Chron. 3. 13.

--Dolia magni
non ardent y
nici, &c. 195

Ευρυπύλῃς.

Id. 29. p.

deffes are described, and how hereby their symbolical sense is lost; although herein it were not hard, to be informed from Phornutus, Fulgentius, and Albricus. Whether Hercules be more properly described strangling then tearing the Lion, as Victorious hath disputed; nor how the characters and figures of the Signes and Planets be now perverted, as Salmasius hath learnedly declared. We will dispence with Beares with long tailes, such as are described in the figures of heaven; We shall tolerate flying Horses, black Swans, Hydrae's, Centaur's, Harpies and Satyres; for these are monstrosities, rarities, or else Poeticall fancies, whose shadowed moralities requite their substantiall falsities. Wherein indeed we must not deny a liberty; nor is the hand of the Painter more restrainable then the pen of the Poet. But where the reall works of Nature, or veritable acts of story are to be described, digressions are aberrations; and Art being but the Imitator or secondary representor, it must not vary from the verity of the example, or describe things otherwise then they truly are or have been: for hereby introducing false Idea's of things, it perverts and deforms the face and symmetry of truth.

Phornut. de natura deorum.
Fulg. mythologia.
Albric. de deorum imaginibus.

CHAP. XX.

Of the Hieroglyphicall Pictures of the Egyptians.

Certainly of all men that suffered from the confusion of Babel, the Egyptians found the best evasion; for, though words were confounded, they invented a language of things, and spake unto each other by common notions in Nature. Whereby they discoursed in silence; and were intuitively understood from the theory of their Expresses. For they assumed the shapes of animals common unto all eies; and by their conjunctions and compositions were able to communicate their conceptions, unto any that coapprehended the Syntaxis of their natures. This many conceive to have been the primitive way of writing, and of greater antiquity then letters; and this indeed might Adam well have spoken, who understanding the nature of things, had the advantage of naturall expressions; which the Egyptians but taking upon trust, upon their own or common opinion; from conceded mistakes they authentically promoted errors; describing in their Hieroglyphicks creatures of their own invention; or from known and conceded animals, erecting significations not inferrible from their natures.

And first, Although there were more things in Nature then words which did expresse them; yet even in these mute and silent discourses, to expresse complexed significations, they took a liberty to compound and piece together creatures of allowable formes into mixtures inexistent. Thus began the descriptions of Griphins, Basilisks, Phenix, and many more; which Emblematists and Heralds have entertained with significations answering their institutions; Hieroglyphically adding Martegres, Wivernes, Lion-fishes, with divers others. Pieces of good and allowable invention unto the prudent Spectator, but are lookt on by vulgar eyes as literall truths, or absurd impossibilities; whereas, indeed they are commendable inventions, and of laudable significations.

Again, Beside these pieces fictitiously set down, and having no copy in Nature; they had many unquestionably drawn, of inconsequent signification, nor naturally verifying their intention. We shall instance but in few, as they stand recorded

bid. 29. †

296.

297.

109.
Arid. 91. x. 109.
44.

In his *Philosophia Barbarica*.

many.

recorded by Orus. The male sex they expressed by a Vulture, because of Vultures all are females, and impregnated by the winde; which authentically transmitted hath passed many pens, and became the assertion of Ælian, Ambrose, Basil, Isidore, Tzerzes, Philes, and others. Wherein notwithstanding what injury is offered unto the Creation in this confinement of sex, and what disturbance unto Philosophy in the concession of windy conceptions, we shall not here declare. By two dragmes they thought it sufficient to signify an heart; because the heart at one year weigheth two dragmes, that is, a quarter of an ounce, and unto fifty years annually encreaseth the weight of one dragma; after which in the same proportion it yearly decreaseth; so that the life of a man doth not naturally extend above an hundred; and this was not only a popular conceit, but consentaneous unto their Physicall principles, as Heurnius hath accounted it.

A woman that hath but one childe, they expresse by a Lionesse; for that conceiveth but once. Fecundity they set forth by a Goat, because but seven daies old, it beginneth to use coition. The abortion of a woman they describe by an Horse kicking a Wolfe; because a Mare will cast her foale if she tread in the track of that animall. Deformity they signifie by a Bear; and an unstable man by an Hyæna, because that animall yearly exchangeth its sex. A woman delivered of a female childe, they imply by a Bull looking over his left shoulder; because if in coition a Bull part from a Cow on that side, the Calf will prove a female.

All which with may more, how farre they consent with truth, we shall not disparage our Reader to dispute; and though some way allowable unto wiser conceits, who could distinctly receive their significations; yet carrying the majesty of Hieroglyphicks, and so transmitted by Authors, they crept into a belief with many, and favourable doubt with most. And thus, I fear, it hath fared with the Hieroglyphicall symboles of Scripture; which excellently intended in the species of things sacrificed, in the prohibited meats, in the dreams of Pharaoh, Joseph, and many other passages; are oft times wrackt beyond their symbolizations, and enlarg'd into constructions disparaging their true intentions.

CHAP. XXI.

Compendiously of many questionable Customs, Opinions, Pictures, Practises, and Popular Observations.

1. If an Hare crosse the high way, there are few above threescore that are not perplexed thereat; which notwithstanding is but an Auguriall terror, according to that received expression, *Inauspicatum dat iter oblatus Lepus*. And the ground of the conceit was probably no greater then this, that a fearfull animall passing by us portended unto us some thing to be feared; as upon the like consideration the meeting of a Fox prefaged some future imposture. Which was a superstitious observation prohibited unto the Jews, as is expressed in the Idolatry of Maimonides, and is referred unto the sin of an observer of Fortunes; or that abuseth events unto good or bad signes, forbidden by the Law of Moses; which notwithstanding sometimes succeeding, according to fears or desires; have left impressions and timorous expectations in credulous mindes for ever.

2. That Owles and Ravens are ominous appearers, and presignifying unlucky events,

The ground of many vain observations.
Deut. 18.

events, as Christians yet conceit, was also an Auguriall conception. Because many Ravens were seen when Alexander entered Babylon, they were thought to preominate his death; and because an Owle appeared before the battell, it presaged the ruine of Crassus. Which though decrepitate superstitions, and such as had their nativity in times beyond all history, are fresh in the observation of many heads, and by the credulous and feminine party still in some Majesty among us. And therefore the Embleme of Superstition was well set out by Ripa, in the picture of an Owle, an Hare, and an old woman; and it no way confirmeth the Auguriall consideration, that an Owle is a forbidden food in the Law of Moses; or that Jerusalem was threatened by the Raven and the Owle, in that expression of Esay 34. That it should be a court for Owles, that the Cormorant and the Bittern should possesse it, and the Owle and the Raven dwell in it. For thereby was only implied their ensuing desolation, as is expounded in the words succeeding; He shall draw upon it the line of confusion, and the stones of emptinesse.

The Embleme of
Superstition.
Iconologia de
Cæsari Ripa.

3. The falling of Salt is an authentick presagement of ill luck, nor can every temper contemn it; from whence notwithstanding nothing can be naturally feared: nor was the same a generall prognostick of future evill among the Ancients, but a particular omination concerning the breach of friendship: for Salt as incorruptible, was the Symbole of friendship, and before the other service was offered unto their guests; which if it casuallly fell, was accounted ominous, and their amity of no duration. But whether Salt were not only a Symbole of friendship with man, but also a figure of amity and reconciliation with God, and was therefore observed in sacrifices; is an higher speculation.

4. To break the eggeshell after the meat is out, we are taught in our childhood, and practise it all our lives; which neverthelesse is but a superstitious relic according to the judgement of Pliny; *Huc pertinet ovorum, ut exorbuerit quisq̃, calices protinus frangi, aut eosdem coclearibus perforari*; and the intent hereof was to prevent witchcraft; for lest witches should draw or prick their names therein, and veneficiously mischief their persons, they broke the shell, as Dalecampius hath observed.

5. The true lovers knot is very much magnified and still retained in presents of love among us; which though in all points it doth not make out, had perhaps its originall from Nodus Herculanus, or that which was called Hercules his knot, resembling the snaky complication in the caduceus or rod of Hermes; and in which form the Zone or woollen girdle of the Bride was fastened, as Turnebus observeth in his *Adversaria*.

6. When our cheek burneth or ear tingleth, we usually say that some body is talking of us; which is an ancient conceit, and ranked among superstitious opinions by Pliny. *Absentes tinnitu aurium præsentire sermones de se receptum est*, according to that Distick noted by Dalecampius.

Garrula quid totis resonas mihi noctibus auris?

Nescio quem dicis nunc meminisse mei.

Which is a conceit hardly to be made out without the concession of a signifying Genius, or universall Mercury; conducting sounds unto their distant subjects, and teaching us to hear by touch.

7. When we desire to confine our words, we commonly say they are spoken under the Rose; which expression is commendable, if the Rose from any naturall property may be the Symbole of silence, as Nazianzene seems to imply in these translated verses:

*Ut q̃ latet Rosa Verna suo putamine clausa,
Sic os vincla ferat, validisq̃ arctetur habenis,*

H h

Indicatq̃

The originall of
the Proverbe,
Under the Rose be
it, &c.

Indicatq³ suis proluxa silentia labris :

And is also tolerable, if by desiring a secrecy to words spoke under the Rose, we only mean in society and compotation, from the ancient custome in Symposiack meetings, to wear chaplets of Roses about their heads: and so we condemn not the Germane custome, which over the Table describeth a Rose in the feeling. But more considerable it is, if the originall were such as Lemnius and others have recorded; that the Rose was the flower of Venus, which Cupid consecrated unto Harpocrates the God of silence, and was therefore an Emblem thereof to conceale the pranks of Venery; as is declared in this Traffick,

*Est Rosa flos veneris, cujus quo facta laterent,
Harpocrati matris, dona dicavit Amor;
Inde Rosam mensis hospes suspendit Amicis,
Conviva ut sub eâ dicta tacenda sciant.*

8. That smoak doth follow the fairest is an usuall saying with us, and in many parts of Europe; whereof although there seem no naturall ground, yet is it the continuation of a very ancient opinion, as Petrus Victorius and Causabon have observed from a passage in Athenæus, wherein a Parasite thus describeth himself:

*To every table first I come,
Whence Porridge I am cal'd by some:
A Capaneus at staires I am,
To enter any room a Ramme;
Like whips and thongs to all I ply,
Like smoak unto the fair I fly.*

9. To sit crosse legg'd, or with our fingers pectinated or shut together is accounted bad, and friends will perswade us from it. The same conceit religiously possessed the Ancients, as is observable from Pliny. *Poplites alternis genibus imponere nefas olim*; and also from Athenæus, that it was an old veneficious practice, and Juno is made in this posture to hinder the delivery of Alcmena. And therefore, as Pierius observeth, in the Medall of Julia Pia the right hand of Venus, was made extended with the inscription of Venus Genetrix; for the complication or pectination of the fingers was an Hieroglyphick of impediment, as in that place he declareth.

10. The set and statary times of pairing of nailes, and cutting of hair is thought by many a point of consideration; which is perhaps but the continuation of an ancient superstition. For piaculous it was unto the Romans to pare their nailes upon the nundinæ, observed every ninth day; and was also feared by others in certain daies of the week, according to that of Ausonius, *Ungues Mercurio, Barbam Jove, Cypride crines*; and was one part of the wickednesse that filled up the measure of Manasses, when 'tis delivered he observed times, 2 Chron. 33.

11. A common fashion it is to nourish hair upon the moults of the face; which is the perpetuation of a very ancient custome; and though innocently practised among us, may have a superstitious originall, according to that of Pliny; *Navos in facie tendere religiosum habent nunc multi*; from the like might proceed the fears of poling Elvelocks or complicated haire of the head, and also of locks longer then the other hair; they being votary at first, and dedicated upon occasion; preserved with great care, and accordingly esteemed by others, as appears by that of Apuleius; *Adjuro per dulcem capilli tui nodulum*.

12. A custome there is in most parts of Europe to adorn Aqueducts, spouts and Cisternes with Lions heads; which though no illaudable ornament, is

an Egyptian continuation, who practised the same under a symbolical illation. For because the Sun being in Leo, the flood of Nilus was at the full, and water became conveyed into every part, they made the spouts of their Aqueducts through the head of a Lion: and upon some celestiall respects it is not improbable the great Mogull or Indian King doth bear for his Armes a Lion and the Sun.

13. Many conceive there is somewhat amisse, and that as we usually say, they are unblest untill they put on their girdle. Wherein (although most know not what they say) there are involved unknown considerations; for by a girdle or cincture are symbolically implied Truth, Resolution and readinesse unto action, which are parts and vertues required in the service of God. According whereto we finde that the Israelites ate the Paschall Lamb with their loins girded, and the Almighty challenging Job, bids him gird up his loins like a man; so runneth the expression of Peter, Gird up the loins of your mindes, be sober and hope to the end; so the high Priest was girt with the girdle of fine linnen; so is it part of the holy habit to have our loins girt about with truth; and so is it also said concerning our Saviour, Righteousnesse shall be the girdle of his loines, and faithfulness the girdle of his reines.

Symbolicall significations of the girdle.

Ila. 11.

Moreover by the girdle the heart and parts which God requires are divided from the inferiour and epithumeticall organs; implying thereby a memento unto purification and cleannesse of heart, which is commonly defiled from the concupiscence and affection of those parts; and therefore unto this day the Jews doe blesse themselves when they put on their zone or cincture. And thus may we make out the doctrine of Pythagoras, to offer sacrifice with our feet naked, that is, that our inferiour parts and farthest removed from reason might be free, and of no impediment unto us. Thus Achilles though dipped in Styx, yet having his heel untouched by that water, although he were fortified elsewhere, he was slain in that part, as only vulnerable in the inferiour and brutall part of Man. This is that part of Eve and her posterity the devil still doth bruise; that is, that part of the soul which adhereth unto earth, and walks in the paths thereof. And in this secondary and symbolical sense it may be also understood, when the Priests in the Law washed their feet before the sacrifice; when our Saviour washed the feet of his Disciples, and said unto Peter, If I wash not thy feet thou hast no part in me; and thus is it symbolically explainable and implieth purification and cleannesse, when in the burnt offerings the Priest is commanded to wash the inwards and legs thereof in water; and in the peace and sin-offerings, to burn the two kidneys, the fat which is about the flanks, and as we translate it, the Caul above the Liver. But whether the Jews when they blessed themselves, had any eye unto the words of Jeremy, wherein God makes them his Girdle; or had therein any reference unto the Girdle, which the Prophet was commanded to hide in the hole of the rock of Euphrates, and which was the type of their captivity, we leave unto higher conjecture.

Concupiscentiall.

10. *

Jer. 13.

14. The Picture of the Creator, or God the Father in the shape of an old Man, is a dangerous piece, and in this fecundity of sects may revive the Anthropomorphites. Which although maintained from the expression of Daniel, I beheld where the Ancient of daies did sit, whose hair of his head was like the pure wooll; yet may it be also derivative from the Hieroglyphicall description of the Egyptians; who to expresse their Eneph, or Creator of the world, described an old man in a blew mantle, with an egge in his mouth, which was the embleme of the world. Surely those heathens, that notwithstanding the exemplary advantage in heaven, would endure no pictures of

Certain Hereticks who ascribed human figure unto God, after which they conceived he created man in his likeness.

pag. 7.

38. +

Sunne or Moon, as being visible unto all the world, and needing no representation; doe evidently accuse the practice of those pencils, that will describe invisibles. And he that challenged the boldest hand unto the picture of an Echo, must laugh at this attempt, not only in the description of invisibility, but circumscription of Ubiquity, and fetching under lines incomprehensible circularity.

The Pictures of the Egyptians were more tolerable, and in their sacred letters more veniably expressed the apprehension of Divinity. For though they implied the same by an eye upon a Scepter, by an Eagles head, a Crocodile and the like; yet did these manuell descriptions pretend no corporall representations; nor could the people misconceive the same unto reall correspondencies. So though the Cherub carried some apprehension of Divinity, yet was it not conceived to be the shape thereof: and so perhaps because it is metaphorically predicated of God, that he is a consuming fire, he may be harmlesly described by a flaming representation, Yet if, as some will have it, all mediocrity of folly is foolish, and because an unrequitable evil may ensue, an indifferent convenience must be omitted; we shall not urge such representations; we could spare the holy Lamb for the picture of our Saviour, and the Dove or fiery Tongues to represent the holy Ghost.

15. The Sunne and Moon are usually described with humane faces; whether herein there be not a Pagan imitation, and those visages at first implied Apollo and Diana, we may make some doubt; and we finde the statua of the Sunne was framed with raies about the head, which were the indiciduous and unshaven locks of Apollo. We should be too Iconomicall to question the pictures of the winds, as commonly drawn in humane heads, and with their cheeks distended; which notwithstanding we finde condemned by Minutius, as answering poetickall fancies, and the gentile description of Æolus, Boreas, and the feigned Deities of winds.

16. We shall not, I hope, disparage the Resurrection of our Redeemer, if we say the Sun doth not dance on Easter day. And though we would willingly assent unto any sympathetick exultation, yet cannot conceive therein any more then a Tropicall expression. Whether any such motion there were in that day wherein Christ arised, Scripture hath not revealed, which hath been punctuall in other records concerning solary miracles: and the Areopagite that was amazed at the Eclipse, took no notice of this. And if metaphorickall expressions go so farre, we may be bold to affirm, not only that one Sunne danced, but two arose that day: That light appeared at his nativity, and darknesse at his death, and yet a light at both; for even that darknesse was a light unto the Gentiles illuminated by that obscurity. That 'twas the first time the Sunne set above the Horizon; that although there were darknesse above the earth there was light beneath it, nor dare we say that hell was dark if he were in it.

17. Great conceits are raised of the involution or membranous covering, commonly called the Silly-how, that sometimes is found about the heads of children upon their birth, and is therefore preserved with great care, not only as medickall in diseases; but effectuall in successe, concerning the Infant and others; which is surely no more then a continued superstition. For hereof we reade in the life of Antoninus delivered by Spartianus, that children are born sometimes with this naturall cap; which Midwives were wont to sell unto credulous Lawyers, who had an opinion it advantaged their promotion.

But to speak strictly the effect is naturall, and thus to be conceived, the Infant hath three teguments, or membranous filmes which cover it in the womb, that is, the Corion, Amnios, and Allantois; the Corion is the outward mem-

brane

Or quarrellsom
with pictures.
Dionys. Ep. 7.
ad Pelicar. &
Pet. Hall Not.
in vit. S. Dionys

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brane wherein are implanted the Veins, Arteries and umbilicall vessels, whereby its nourishment is conveyed: the Allantois a thin coat seated under the Corion, wherein are received the watery separations conveyed by the Urachus, that the acrimony thereof should not offend the skin. The Amnios is a generall investment, containing the sudorous or thin serosity perspirable through the skin. Now about the time when the Infant breaketh these coverings, it sometime carrieth with it about the head a part of the Amnios or neereft coat; which saith Spiegelius, either proceedeth from the toughness of the membrane or weaknesse of the Infant that cannot get clear thereof: and therefore herein significations are naturall and concluding upon the Infant, but not to be extended unto magicall signalities or any other person.

De formato
latu.

95.

18. That 'tis good to be drunk once a moneth, is a common flattery of sensuality, supporting it self upon physick, and the healthfull effects of inebriation. This indeed seems plainly affirmed by Avicenna, a Physitian of great authority, and whose religion prohibiting Wine could lesse extenuate ebriety. But Averroes a man of his own faith was of another belief, restraining his ebriety unto hilarity, and in effect making no more thereof, then Seneca commendeth, and was allowable in Cato; that is, a sober incalcescence and regulated æstuation from wine, or what may be conceived between Joseph and his brethren, when the text expresth they were merry, or dranke largely; and whereby indeed the commodities set down by Avicenna, that is, alleviation of spirits, resolution of superfluities, provocation of sweat and urine may also ensue. But as for dementation, sopition of reason, and the diviner particle from drink, though American religion approve, and Pagan piety of old hath practised, even at their sacrifices; Christian morality and the doctrine of Christ will not allow. And surely that religion which excuseth the fact of Noah, in the aged surprisall of six hundred years, and unexpected inebriation from the unknown effects of wine, will neither acquit ebriosity nor ebriety, in their known and intended perversions.

809

13.

Fextur Catoris saps non
caluiss virtus. Horal.

And indeed, although sometimes effects succeed which may relieve the body, yet if they carry mischief or peril unto the soul, we are therein restrainable by Divinity, which circumscribeth Physick, and circumstantially determineth the use thereof. From naturall considerations, Physick commendeth the use of venery; and happily, incest, adultery, or stupration may prove as physically advantageous, as conjugall copulation; which notwithstanding must not be drawn into practise. And truly effects, consequents, or events which we commend, arise oft times from waies which we all condemn. Thus from the fact of Lot, we derive the generation of Ruth, and blessed Nativity of our Saviour; which notwithstanding did not extenuate the incestuous ebriety of the generator. And if, as is commonly urged, we think to extenuate ebriety from the benefit of vomit oft succeeding; Egyptian sobriety wil condemn us, who purged both waies twice a moneth, without this perturbation: and we foolishly condemn the liberall hand of God, and ample field of medicines which soberly produce that action.

vid. 34.

19. A conceit there is that the Devil commonly appeareth with a cloven hoof; wherein although it seem excessively ridiculous, there may be somewhat of truth; and the ground thereof at first might be his frequent appearing in the shape of a Goat, which answers that description. This was the opinion of ancient Christians concerning the apparition of Panites, Faunes and Satyres; and in this form we reade of one that appeared unto Antony in the wilderness. The same is also confirmed from expositions of holy Scripture; for whereas it is said, Thou shalt not offer unto Devils, the Originall word is

Why the devil is
commonly said to
appear with a clo-
ven foot

Levit. 17.

In his Dæmonomania.

Seghnirim, that is, rough and hairy Goats, because in that shape the Devil most often appeared; as is expounded by the Rabbins, as Tremellius hath also explained; and as the word *Ascimah*, the god of Emath is by some conceived. Nor did he only assume this shape in elder times, but commonly in later daies, especially in the place of his worship: If there be any truth in the confession of Witches, and as in many stories it stands confirmed by Bodinus. And therefore a Goat is not improperly made the Hieroglyphick of the devil, as Pierius hath expressed it; so might it be the Emblem of sinne, as it was in the sin offering; and so likewise of wicked and sinfull men, according to the expression of Scripture in the method of the last distribution; when our Saviour shall separate the Sheep from the Goats, that is, the sons of the Lamb from the children of the devil.

CHAP. XXII.

of some others.

De varietate rerum.

1. **T**hat tempermentall dignotions, and conjecture of prevalent humours, may be collected from spots in our nails, we are not averse to concede. But yet not ready to admit sundry divinations, vulgarly raised upon them. Nor doe we observe it verified in others, what Cardan discovered as a property in himself: to have found therein some signes of most events that ever happened unto him. Or that there is much considerable in that doctrine of Cheiromancy, that spots in the top of the nailes doe signifie things past; in the middle, things present; and at the bottome, events to come. That white specks preface our felicity, blew ones our misfortunes. That those in the nail of the thumb have significations of honour, those in the forefinger of riches, and so respectively in other fingers, (according to Planeticall relations, from whence they receive their names) as Tricassus hath taken up, and Picciolus well rejecteth.

We shall not proceed to querie, what truth there is in Palmistrie, or divination from those lines in our hands, of high denomination. Although if any thing be therein, it seems not confinable unto man; but other creatures are also considerable: as is the forefoot of the Moll, and especially of the Monkey; wherein we have observed the table line, that of life, and of the liver.

How Abraham might understand the language of severall Nations.

2. That Children committed unto the school of Nature, without institution would naturally speak the primitive language of the world, was the opinion of ancient heathens, and continued since by Christians; who will have it our Hebrew tongue, as being the language of Adam. That this were true were much to be desired, not only for the easie attainment of that usefull tongue, but to determine the true and primitive Hebrew. For whether the present Hebrew, be the unconfounded language of Babel, and that which remaining in Heber was continued by Abraham and his posterity; or rather the language of Phania and Canaan, wherein he lived, some learned men I perceive doe yet remain unsatisfied. Although I confesse probability stands fairest for the former; nor are they without all reason, who think that at the confusion of tongues, there was no constitution of a new speech in every family; but a variation and permutation of the old, out of one common language raising severall dialects; the primitive tongue remaining still entire. Which they who retained might make a shift to understand most of the rest. By vertue whereof

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in those primitive times and greener confusions, Abraham of the family of Heber was able to converse with the Chaldeans, to understand Mesopotamians, Chananites, Philistins and Egyptians; whose severall dialects he could reduce unto the originall and primitive tongue, and so be able to understand them.

3. Though uselesse unto us and rather of molestation, we commonly refrain from killing Swallows, and esteem it unlucky to them: whether herein there be not a pagan relique, we have some reason to doubt. For we read in Ælian, that these birds were sacred unto the Penates or household gods of the ancients, and therefore were preserved. The same they also honoured as the nuncio's of the spring; and we finde the Rhodians had a solemn song to welcome in the Swallow.

10. *

The same is extant in the 8th of Athenæus.

4. That Candles and lights burn dimme and blew at the apparition of spirits, may be true, if the ambient ayre be full of sulphurous spirits, as it happeneth oft times in mines; where damps and acide exhalations are able to extinguish them. And may be also verified, when spirits doe make themselves visible by bodies of such effluviūms. But of lower consideration is the common foretelling of strangers, from the fungous parcells about the weeks of Candles: which only signifieth a moist and pluvius ayre about them, hindering the avolation of the light and favillous particles: whereupon they are forced to settle upon the snaf.

Why Candles may burn blue, before the apparition of a spirit.

5. Though Corall doth properly preserve and fasten the Teeth in men, yet is it used in children to make an easier passage for them: and for that intent is worn about their necks. But whether this custome were not superstitiously founded, as presumed an amulet or defenstative against fascination, is not beyond all doubt. For the same is delivered by Pliny. *Aruspices religiosum Coralli gestamen amoliendis periculis arbitrantur; & surculi infantie alligati, tutelam habere creduntur.*

Lib. 32.

6. A strange kinde of exploration and peculiar way of Rhabdomancy is that which is used in minerall discoveries; that is, with a forked hazell, commonly called Moses his rod, which freely held forth, will stirre and play if any mine be under it. And though many there are who have attempted to make it good, yet untill better information, we are of opinion with Agricola, that in it self it is a fruitlesse exploration, strongly senting of Pagan derivation, and the *virgula Divina*, proverbially magnified of old. The ground whereof were the Magicall rods in Poets; that of Pallas in Homer, that of Mercury that charmed Argus, and that of Circe which transformed the followers of Ulysses; too boldly usurping the name of Moses rod; from which notwithstanding, and that of Aaron were probably occasioned the fables of all the rest. For that of Moses must needs be famous unto the Egyptians; and that of Aaron unto many other nations, as being preserved in the Arke, untill the destruction of the Temple built by Solomon.

De re metall. ca. lib. 2.

7. A practise there is among us to determine doubtfull matters, by the opening of a book, and letting fall a staff; which notwithstanding are ancient fragments of Pagan divinations. The first an imitation of *Sortes Homerica*, or *Virgiliana*, drawing determinations from verses casually occurring. The same was practised by Severus, who entertained ominous hopes of the Empire, from that verse in Virgil, *Tu regere imperio populos Romane memento*; and Gordianus who reigned but few daies was discouraged by another, that is, *Ostendunt terris hunc tantum fata nec ultra esse sinunt*. Nor was this only performed in Heathen Authours, but upon the sacred text of Scripture, as Gregorius Turonensis hath left some account; and as the practise of the Emperor Heraclius, before his Expedition into Asia minor, is delivered by Cedrenus.

As

Hosea 4.

Ezekiel 24.

2 King. 13. 15.

As for the Divination or decision from the staffe, it is an Auguriall relique, and the practise thereof is accused by God himself; My people ask counsel or their stocks, and their staffe declareth unto them. Of this kinde of Rhabdomancy was that practised by Nabuchadonosor in that Caldean miscellany, delivered by Ezekiel; The King of Babylon stood at the parting of the way, at the head of the two waies to use divination, he made his arrowes bright, he consulted with Images, he looked in the Liver; at the right hand were the divinations of Jerusalem. That is, as Estius expoundeth it, the left way leading unto Rabbah the chief city of the Ammonites, and the right unto Jerusalem, he consulted Idols and entrails, he threw up a bundle of Arrows, to see which way they would light; and falling on the right hand he marched towards Jerusalem. A like way of Belomancy or Divination by Arrows hath been in request with Scythians, Alanes, Germans, with the Africans and Turks of Algier. But of another nature was that which was practised by Elisha, when by an Arrow shot from an Eastern window, he presignified the destruction of Syria; or when according unto the three stroaks of Joash, with an Arrow upon the ground, he foretold the number of his victories. For thereby the Spirit of God particular'd the same, and determined the stroaks of the King unto three, which the hopes of the Prophet expected in twice that number.

We are unwilling to enlarge concerning many other; only referring unto Christian considerations, what naturall effects can reasonably be expected, when to prevent the Ephialtes or night-Mare we hang up an hollow stone in our stables; when for amulets against Agues we use the chips of Gallows and places of Execution. When for Warts we rub our hands before the Moon, or commit any maculated part unto the touch of the dead. Swarms hereof our learned Selden and criticall Philologers might illustrate, whose abler performances our adventures doe but sollicite; mean while I hope they will plausibly receive our attempts, or candidly correct our misconceptions.

8. We cannot omit to observe, the tenacity of ancient customes, in the nominall observation of the severall daies of the week, according to Gentile and Pagan appellations: for the Originall is very high, and as old as the ancient Egyptians, who named the same according to the seven Planets, the admired Starres of heaven, and reputed deities among them. Unto every one assigning a severall day; not according to their celestially order, or as they are disposed in heaven; but after a diatefferon or musically fourth. For beginning Saturday with Saturn the supremest Planet, they accounted by Jupiter and Mars unto Sol, making Sunday. From Sol in like manner by Venus and Mercurie unto Luna, making Munday; and so through all the rest. And the same order they confirmed by numbring the houres of the day unto twenty four, according to the naturall order of the Planets. For beginning to account from Saturn, Jupiter, Mars, and so about unto twenty four, the next day will fall unto Sol; whence accounting twenty four, the next will happen unto Luna, making Munday. And so with the rest, according to the account and order observed still among us.

The Jews themselves in their Astrological considerations, concerning Nativities and Planetary hours, observe the same order, upon as witty foundations. Because by an equall intervall, they make seven triangles, the bases whereof are the seven sides of a septilaterall figure, described within a circle. That is, If a figure of seven sides be described in a circle, and at the angles thereof the names of the Planets be placed, in their naturall order on it: if we begin with Saturn, and successively draw lines from angle to angle, untill

Dion. Cassij.
lib. 37.

308. 90.

See 3 Epist. Dedicat. in fin.

untill seven equicrural triangles be described, whose bases are the seven sides of the septilaterall figure; the triangles will be made by this order. The first being made by Saturn, Sol and Luna, that is, Saturday, Sunday and Monday; and so the rest in the order still retained.

But thus much is observable, that however in celestiaall considerations they embraced the received order of the Planets, yet did they not retain either characters or names in common use amongst us; but declining humane denominations, they assigned them names from some remarkable qualities, as is very observable in their red and splendent Planets, that is of Mars and Venus. But the change of their names disparaged not the consideration of their natures; nor did they thereby reject all memory of these remarkable Starres; which God himself admitted in his Tabernacle, if conjecture will hold concerning the golden Candlestick; whose shaft resembled the Sunne, and six branches the Planets about it.

*Cujus iron a.
pud doct. affa-
ret. cap. 11.
Et Fabru. Pa.
duantum.*

*Maadim.
Nogab.*

*Disce, sed ira cadat naso, rugosaq; fanna,
Dum veteres avias tibi de pulmone revello.*

I i

THE



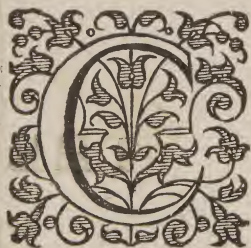
THE SIXTH BOOK:

*Of sundry common opinions Cosmographicall
and Historicall.*

The first Discourse comprehended in severall Chapters.

CHAP. I.

Concerning the beginning of the World, that the time thereof is not precisely to be known, as men generally suppose: Of mens enquiries in what season or point of the Zodiack it began. That as they are generally made they are in vain, and as particularly applied uncertain. Of the division of the seasons and four quarters of the year, according to Astronomers and Physitians. That the common compute of the Ancients, and which is yet retained by most, is unreasonable and erroneous. Of some divinations and ridiculous deductions from one part of the year to another. And of the providence and wisdom of God in the site and motion of the Sun.



The age of the
world not certainly
determinable.

Concerning the World and its temporall circumscriptions, who ever shall strictly examine both extreame, will easily perceive there is not only obscurity in its end but its beginning; that as its period is inscrutable, so is its nativity indeterminable: That as it is presumption to enquire after the one, so is there no rest or satisfactory decision in the other. And hereunto we shall more readily assent, if we examine the informations, and take a view of the severall difficulties in this point; which we shall more easily doe, if we consider the different conceits of men, and duly perpend the imperfections of their discoveries.

And first, The histories of the Gentiles afford us slender satisfaction, nor can they relate any story, or affix a probable point to its beginning. For some thereof (and those of the wisest amongst them) are so farre from determining its beginning, that they opinion and maintain it never had any at all; as the doctrine of Epicurus implieth, and more positively Aristotle in his books *De Cælo* declareth, endeavouring to confirm it with arguments of reason, and those appearingly demonstrative; wherein his labours are rationally, and uncontrollable upon the grounds assumed, that is, of Physicall generation, and a primary or first matter, beyond which no other hand was apprehended.

But

But herein we remain sufficiently satisfied from Moses, and the doctrine delivered of the Creation; that is, a production of all things out of nothing, a formation not only of matter, but of form, and a materiation even of matter it self.

Others are so farre from defining the originall of the world or of mankinde, that they have held opinions not only repugnant unto Chronology, but Philosophy; that is, that they had their beginning in the soile where they inhabited, assuming or receiving appellations conformable unto such conceits. So did the Athenians term themselves *αυτιχθονες* or *Aborigines*, and in testimony thereof did wear a golden Insect on their heads; the same name is also given unto the Inlanders or Midland inhabitants of this Island by Caesar. But this is a conceit answerable unto the generation of the Giants; not admittable in Philosophy, much lesse in Divinity, which distinctly informeth we are all the seed of Adam, that the whole world perished unto eight persons before the flood, and was after peopled by the Colonies of the sonnes of Noah. There was therefore never any Autochthon, or man arising from the earth but Adam; for the woman being formed out of the rib, was once removed from earth, and framed from that element under incarnation. And so although her production were not by copulation, yet was it in a manner feminall: For if in every part from whence the seed doth flow, there be contained the Idea of the whole; there was a feminallity and contracted Adam in the rib; which by the information of a soul, was individuated into Eve. And therefore this conceit applied unto the originall of man, and the beginning of the world, is more justly appropriable unto its end; for then indeed men shall rise out of the earth, the graves shall shoot up their concealed seeds, and in that great Autumne, men shall spring up, and awake from their Chaos again.

Others have been so blinde in deducing the originall of things, or delivering their own beginnings, that when it hath fallen into controversie, they have not recurred unto Chronologie or the records of time; but betaken themselves unto probabilities, and the conjecturalities of Philosophy. Thus when the two ancient Nations, Egyptians and Scythians contended for antiquity, the Egyptians (as Diodorus and Justine relate) pleaded their antiquity from the fertility of their soile, inferring that men there first inhabited, where they were with most facility sustained; and such a land did they conceive was Egypt.

The Scythians although a cold and heavier Nation urged more acutely, deducing their arguments from the two active elements and principles of all things, Fire and Water; for if of all things there was first an union, and that Fire overruled the rest; surely that part of earth which was coldest would first get free, and afford a place of habitation. But if all the earth were first involved in Water, those parts would surely first appear, which were most high, and of most elevated situation, and such was theirs. These reasons carried indeed the antiquity from the Egyptians, but confirmed it not in the Scythians; for as Herodotus relateth from Pargitais their first King unto Darius, they accounted but two thousand years.

As for the Egyptians they invented another way of triall; for as the same Author relateth, Psamnitichus their King attempted this decision by a new and unknown experiment, bringing up two Infants with Goats, and where they never heard the voice of man; concluding that to be the ancientest Nation, whose language they should first deliver. But herein he forgot that speech was by instruction not instinct, by imitation, not by nature; that men doe speak in some kinde but like Parrets, and as they are instructed, that

Why the Athenians did wear a golden Insect upon their head,

293.

That men speak, not by naturall instinct, but by instruction and imitation.

is, in simple terms and words, expressing the open notions of things; which the second act of reason compoundeth into propositions, and the last into syllogismes and formes of ratiocination. And howsoever the account of Manethon the Egyptian Priest runne very high, and it be evident that Mizraim peopled that Country (whose name with the Hebrews it beareth unto this day) and there be many things of great antiquity related in holy Scripture, yet was their exact account not very ancient; for Ptolomy their Countryman beginneth his Astronomical compute no higher then Nabonasser, who is conceived by some the same with Salmanasser. As for the argument deduced from the fertility of the soile, duly enquired, it rather overthroweth then promoteth their antiquity; for that Country whose fertility they so advance, was in ancient times no firm or open land, but some vast lake or part of the Sea, and became a gained ground by the mud and limous matter brought down by the river Nilus, which settled by degrees into a firm land. According as is expressed by Strabo, and more at large by Herodotus, both from the Egyptian tradition and probable inducements from reason, called therefore *fluvii donum*, an accession of earth, or tract of land acquired by the river.

Lastly, Some indeed there are, who have kept records of time, and of a considerable duration, yet doe the exactest thereof afford no satisfaction concerning the beginning of the world, or any way point out the time of its creation. The most authentick records and best approved antiquity are those of the Chaldeans; yet in the time of Alexander the Great, they attained not so high as the flood. For as Simplicius relateth, Aristotle required of Calisthenes who accompanied that Worthy in his expedition, that at his arrive at Babylon, he would enquire of the antiquity of their Records, and those upon compute he found to amount unto 1903 years; which account notwithstanding ariseth no higher then 95 years after the flood. The Arcadians I confesse, were esteemed of great antiquity, and it was usually said they were before the Moon; according unto that of Seneca, *Sydus post veteres Arcades editum*; and that of Ovid, *Lunâ gens prior illa fuit*. But this as Censorinus observeth, must not be taken grossely, as though they were existent before that Luminary; but were so esteemed, because they observed a set course of year, before the Greeks conformed their year unto the course and motion of the Moon.

Thus the heathens affording no satisfaction herein, they are most likely to manifest this truth who have been acquainted with holy Scripture, and the sacred Chronology delivered by Moses, who distinctly sets down this account, computing by certain intervals, by memorable Æra's, Epoche's, or terms of time. As from the creation unto the flood, from thence unto Abraham, from Abraham unto the departure from Egypt, &c. Now in this number have only been Samaritans, Jews and Christians. For the Jews they agree not in their accounts, as Bodine in his method of history hath observed out of Baal Seder, Rabbi Nassom, Gersom, and others, in whose compute the age of the World is not yet 5400 years. The same is more evidently observable from two most learned Jewes, Philo and Josephus; who very much differ in the accounts of time, and variously summe up these intervals assented unto by all. Thus Philo from the departure out of Egypt unto the building of the Temple accounts but 920 years, but Josephus sets down 1062. Philo from the building of the Temple to its destruction 440, Josephus 470: Philo from the creation to the destruction of the Temple 3373, but Josephus 3513; Philo from the deluge to the destruction of the Temple 1718, but Josephus 1913. In which computes there

are

Different accounts
upon Scripture
concerning the
age of the world.

are manifest disparities, and such as much divide the concordance and harmony of times.

For the Samaritans; their account is different from these or any others; for they account from the creation to the deluge, but 1302 years; which cometh to passe upon the different account of the ages of the Patriarks set down when they begat children. For whereas the Hebrew, Greek and Latine texts account Jared 162 when he begat Enoch, they account but 62; and so in others. Now the Samaritans were no incompetent judges of times and the Chronology thereof; for they embraced the five books of Moses, and, as it seemeth, preserved the Text with farre more integrity then the Jews; who as Tertullian, Chrysostome, and others observe, did severall waies corrupt the same, especially in passages concerning the propheties of Christ; so that as Jerome professeth, in his translation he was fain sometime to relieve himself by the Samaritane Pentateuch; as amongst others in that Text, Deuteronomy 27. *Maledictus omnis qui non permanserit in omnibus quae scripta sunt in libro Legis.* From hence St Paul, Galatians 3. inferreth there is no justification by the Law, and urgeth the Text according to the Septuagint. Now the Jews, to afford a latitude unto themselves, in their copies expunged the word *וְ* or Syneategorematicall term *omnis*; wherein lieth the strength of the Law, and of the Apostles argument; but the Samaritane Bible retained it right, and answerable unto what the Apostle had urged.

As for Christians from whom we should expect the exactest and most concurring account, there is also in them a manifest disagreement, and such as is not easily reconciled. For first, The Latines accord not in their account; to omit the calculation of the Ancients, of Austin, Bede, and others, the Chronology of the Modernes doth manifestly dissent. Josephus Scaliger, whom Helvicus seems to follow, accounts the Creation in 765 of the Julian period; and from thence unto the nativity of our Saviour alloweth 3947 years; But Dionysius Petavius a learned Chronologer dissenteth from this compute almost 40 years; placing the Creation in the 730 of the Julian period, and from thence unto the Incarnation accounteth 3983 years.

For the Greeks; their accounts are more anomalous; for if we recurre unto ancient computes, we shall finde that Clemens Alexandrinus an ancient Father and *Præceptor* unto Origen, accounted from the Creation unto our Saviour, 5664 years; for in the first of his *Stromaticks*, he collecteth the time from Adam unto the death of Commodus to be 5858 years; now the death of Commodus he placeth in the year after Christ 194, which number deducted from the former there remaineth 5664. Theophilus Bishop of Antioch accounteth unto the nativity of Christ 5515, deduceable from the like way of compute, for in his first book *ad Antiochum*, he accounteth from Adam unto Aurelius Verus 5695 years; now that Emperour died in the year of our Lord 180, which deducted from the former summe, there remaineth 5515. Julius Africanus an ancient Chronologer, accounteth sowewhat lesse, that is, 5500. Eusebius, Orosius and others dissent not much from this, but all exceed five thousand.

The latter compute of the Greeks, as Petavius observeth, hath been reduced unto two or three accounts. The first accounts unto our Saviour 5501, and this hath been observed by Nicephorus, Theophanes, and Maximus. The other accounts 5509: And this of all at present is generally received by the Church of Constantinople, observed also by the Moscovite, as I have seen in the date of the Emperours letters; wherein this year of ours 1645 is from

By what account
the world hath la-
sted 7154 years.

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the year of the world 7154, which doth exactly agree unto this last account 5509, for if unto that summe be added 1645, the product will be 7154, by this Chronology are many Greek Authors to be understood; and thus is Martinus Crusius to be made out, when in his Turcogræcian history he delivers, the City of Constantinople was taken by the Turks in the year 545^a that is, 6961. Now according unto these Chronologists, the Prophecy of Elias the Rabbin, so much in request with the Jews, and in some credit also with Christians, that the world should last but six thousand years; unto these, I say, it hath been long and out of memory disproved, for the Sabbaticall and 7000 year wherein the world should end (as did the Creation on the seventh day) unto them is long agoe expired; they are proceeding in the eight thousand year, and numbers exceeding those daies which men have made the types and shadows of these. But certainly what Marcus Leo the Jew conceiveth of the end of the heavens, exceedeth the account of all that ever shall be; for though he conceiveth the Elementall frame shall end in the seventh or Sabbaticall millenary, yet cannot he opinion the heavens and more durable part of the Creation shall perish before seven times seven, or 49, that is, the Quadrant of the other seven, and perfect Jubilee of thousands.

Thus may we observe the difference and wide dissent of mens opinions, and thereby the great incertainty in this establishment. The Hebrews not only dissenting from the Samaritans, the Latines from the Greeks, but every one from another. Insomuch that all can be in the right it is impossible; that any one is so, not with assurance determinable. And therefore as Petavius confesseth, to effect the same exactly without inspiration it is impossible, and beyond the Arithmetick of any but God himself. And therefore also what satisfaction may be obtained from those violent disputes, and eager enquirers in what day of the moneth the world began, either of March or October; likewise in what face or position of the Moon, whether at the prime or full, or soon after, let our second and serious considerations determine.

The cause of so
different accounts
about the age of
the world.

Supra. 239.

Corruption even
in the Hebrew
Text of the Bible.

Now the reason and ground of this dissent, is the unhappy difference between the Greek and Hebrew editions of the Bible, for unto these two Languages have all Translations conformed; the holy Scripture being first delivered in Hebrew, and first translated into Greek. For the Hebrew; it is incontrovertibly the primitive and surest text to rely on, and to preserve the same entire and uncorrupt there hath been used the highest caution humanity could invent. For as R. Ben. Maimon hath declared, if in the copying thereof one letter were written twice, or if one letter but touched another, that copy was not admitted into their Synagogues; but only allowable to be read in Schooles, and private families. Neither were they carefull only in the exact number of their sections of the Law, but had also the curiosity to number every word, and affixed the account unto their severall books. Notwithstanding all which, divers corruptions ensued, and severall depravations slipped in, arising from many and manifest grounds, as hath been exactly noted by Morinus in his preface unto the Septuagint.

As for the Septuagint, it is the first and most ancient Translation; and of greater Antiquity then the Chaldee version; occasioned by the request of Ptolomeus Philadelphus King of Egypt, for the ornament of his memorable Library; unto whom the high Priest addressed six Jews out of every Tribe, which amounteth unto 72; and by these was effected that Translation we usually terme the Septuagint, or Translation of seventy. Which name however it obtain from the number of their persons, yet in respect of one common Spirit,

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Spirit, it was the Translation but as it were of one man. For as the story relateth, although they were set apart and severed from each other, yet were their Translations found to agree in every point, according as is related by Philo and Josephus; although we finde not the same in Aristæus, who hath expressly treated thereof.

This Translation in ancient times was of great authority; By this many of the Heathens received some notions of the Creation and the mighty works of God; This in expresse terms is often followed by the Evangelists, by the Apostles, and by our Saviour himself in the quotations of the old Testament. This for many years was used by the Jews themselves, that is, such as did Hellenize and dispersedly dwelt out of Palestine with the Greeks; and this also the succeeding Christians and ancient Fathers observed; although there succeeded other Greek versions, that is, of Aquila, Theodosius and Symmachus; for the Latin translation of Jerome, called now the Vulgar, was about 800. years after the Septuagint; although there was also a Latin translation before, called the Italick version. Which was after lost upon the generall reception of the translation of St Jerome. Which notwithstanding (as he himself acknowledgeth) had been needlesse, if the Septuagint copies had remained pure, and as they were first translated. But, (beside that different copies were used, that Alexandria and Ægypt followed the copy of Hesychius, Antioch and Constantinople that of Lucian the Martyr, and others that of Origen) the Septuagint was much depraved, not only from the errors of Scribes, and the emergent corruptions of time, but malicious contrivance of the Jews; as Justin Martyr hath declared, in his learned dialogue with Trypho, and Morinus hath learnedly shewn from many confirmations.

Whatsoever Interpretations there have been since, have been especially effected with reference unto these, that is, the Greek and Hebrew text; the Translators sometimes following the one, sometimes adhering unto the other, according as they found them consonant unto truth, or most correspondent unto the rules of faith. Now however it cometh to passe, these two are very different in the enumeration of Genealogies, and particular accounts of time; for in the second intervall, that is, between the flood and Abraham, there is by the Septuagint introduced one Cainan to be the son of Arphaxad and father of Salah; whereas in the Hebrew there is no mention of such a person, but Arphaxad is set down to be the father of Salah. But in the first intervall, that is, from the Creation unto the flood, their disagreement is more considerable; for therein the Greek exceedeth the Hebrew, and common account almost 600 years. And 'tis indeed a thing not very strange, to be at the difference of a third part, in so large and collective an account, if we consider how differently they are set forth in minor and lesse mistakable numbers. So in the Prophecie of Jonah, both in the Hebrew and Latine text, it is said, Yet forty daies and Ninevy shall be overthrown: But the Septuagint saith plainly, and that in letters at length, *τρεῖς ἡμέρας*, that is, yet three daies and Ninevy shall be destroyed. Which is a difference not newly crept in, but an observation very ancient, discussed by Austin, and Theodoret, and was conceived an error committed by the Scribe. Men therefore have raised different computes of time, according as they have followed their different texts; and so have left the history of times far more perplexed then Chronology hath reduced.

Again, However the texts were plain, and might in their numerations agree, yet were there no small difficulty to set down a determinable Chronology, or establish from hence any fixed point of time. For the doubts concerning the time of the Judges are inexplicable; that of the Raignes and succession of Kings

The Credit of the
Septuagint trans-
lation.
*Aristæus ad
Philocratorem
de 72 interpre-
tibus.*

*Prefat. in Pa-
ralipom.*

*De Hebræi &
Græci textus
sinceritate;*

238.

Kings is as perplexed ; it being uncertain whether the years both of their lives and raignes ought to be taken as complete, or in their beginning and but currant accounts. Nor is it unreasonable to make some doubt whether in the first ages, and long lives of our fathers, Moses doth not sometime account by full and round numbers, whereas strictly taken they might be some few years above or under : As in the age of Noah, it is delivered to be just five hundred when he begat Sem ; whereas perhaps he might be somewhat above or below that round and complete number. For the same way of speech is usuall in divers other expressions : Thus doe we say the Septuagint, and using the full and articulate number, doe write the Translation of Seventy ; whereas we have shewen before, the precise number was Seventy two. So is it said that Christ was three daies in the grave, according to that of Matthew, as Jonas was three daies and three nights in the Whales belly, so shall the Son of man be three daies and three nights in the heart of the earth : which notwithstanding must be taken Synecdochically ; or by understanding a part for an whole day ; for he remained but two nights in the grave ; for he was buried in the afternoon of the first day, and arose very early in the morning on the third ; that is, he was interred in the eve of the Sabbath, and arose the morning after it.

Moreover, although the number of years be determined and rightly understood, and there be without doubt a certain truth herein ; yet the text speaking obscurely or dubiously, there is oft times no slender difficulty at what point to begin or terminate the account. So when it is said, *Exod. 12.* the sojourning of the children of Israel who dwelt in *Ægypt* was 430 years, it cannot be taken strictly, and from their first arrivall into *Ægypt*, for their habitation in that land was farre lesse ; but the account must begin from the Covenant of God with Abraham, and must also comprehend their sojourn in the land of Canaan, according as is expressed, *Gal. 3.* The Covenant that was confirmed before of God in Christ, the Law which was 430 years after cannot disannull. Thus hath it also happened in the account of the 70 years of their captivity, according to that of *Jeremy, chap. 20.* This whole land shall be a desolation, and these Nations shall serve the King of Babylon 70 years. Now where to begin, or end this compute ariseth no small difficulty : for there were three remarkable captivities, and deportations of the Jews. The first was in the third or fourth year of Joachim, and first of Nabuchodonozor, when Daniel was carried away ; the second in the reign of Jeconiah, and the eighth year of the same King ; the third and most deplorable in the reign of Zedechias, and in the nineteenth year of Nabuchodonozor, whereat both the Temple and City were burned. Now such is the different conceit of these times, that men have computed from all ; but the probablest account and most concordant unto the intention of *Jeremy*, is from the first of Nabuchodonozor unto the first of King Cyrus over Babylon ; although the Prophet Zachary accounteth from the last. O Lord of hostes, How long ! Wilt thou not have mercy on Jerusalem, against which thou hast had indignation these threescore and ten years ? for he maketh this expostulation in the second year of Darius Hystaspes, wherein he prophesied, which is about eighteen years in account after the other.

Thus also although there be a certain truth therein, yet is there no easie doubt concerning the seventy weeks, or seventy times seven years of Daniel ; whether they have reference unto the nativity or passion of our Saviour, and especially from whence, or what point of time they are to be computed. For thus is it delivered by the Angel Gabriel : Seventy weeks are determined upon thy people ; and again in the following verse : Know therefore and understand,

Chap. 1. 12.

The difficulties
of Daniels
70 Weeks.

understand, that from the going forth of the Commandment to restore and to build Jerusalem unto the Messiah the Prince, shall be seven weeks, and threescore and two weeks, the street shall be built again, and the wall even in troublesome times; and after threescore and two weeks shall Messiah be cut off. Now the going out of the Commandment to build the City, being the point from whence to compute, there is no slender controversie when to begin. For there are no lesse then four severall Edicts to this effect; the one in the first year of Cyrus, the other in the second of Darius, the third and fourth in the seventh, and in the twentieth of Artaxerxes Longimanus; although as Petavius accounteth, it best accordeth unto the twenty year of Artaxerxes, from whence Nehemiah deriveth his Commission. Now that computes are made uncertainly with reference unto Christ, it is no wonder, since I perceive the time of his Nativity is in controversie, and no lesse his age at his Passion: For Clemens and Tertullian conceive he suffered at thirty; but Irenaeus a Father nearer his time, is further off in his account, that is, between forty and fifty.

Longomontanus a late Astronomer, endeavours to discover this secret from Astronomicall grounds, that is, the Apogee of the Sunne; conceiving the Excentricity invariable, and the Apogee yearly to move one scruple, two seconds, fifty thirds, &c. Wherefore if in the time of Hipparchus, that is, in the year of the Julian period 4557 it was in the fifth degree of Gemini, and in the daies of Tycho Brahe, that is, in the year of our Lord 1588, or of the world 5554, the same was removed unto the fifth degree of Cancer; by the proportion of its motion, it was at the creation first in the beginning of Aries, and the Perigee or nearest point in Libra. But this conceit how ingenious or subtile soever is not of satisfaction; it being not determinable, or yet agreed in what time precisely the Apogee absolveth one degree, as Petavius hath also delivered.

Lastly, However these or other difficulties intervene, and that we cannot satisfie our selves in the exact compute of time, yet may we sit down with the common and usuall account; nor are these differences derogatory unto the Advent or Passion of Christ, unto which indeed they all doe seem to point; for the Prophecies concerning our Saviour, were indefinitely delivered before that of Daniel; so was that pronounced unto Eve in Paradise, that after of Balaam, those of Isaiah and the Prophets, and that memorable one of Jacob, The Scepter shall not depart from Israel till Shilo come; which time notwithstanding it did not define at all. In what year therefore soever, either from the destruction of the Temple, from the reedifying thereof, from the flood, or from the Creation he appeared, certain it is, that in the fulnesse of time he came. When he therefore came is not so considerable, as that he is come; in the one there is consolation, in the other no satisfaction. The greater Quere is, when he will come again? and yet indeed it is no Quere at all; for that is never to be known, and therefore vainly enquired: 'tis a professed and authentick obscurity, unknown to all but to the omniscience of the Almighty. Certainly the ends of things are wrapt up in the hands of God, he that undertakes the knowledge thereof forgets his own beginning, and disclaims his principles of earth. No man knows the end of the world, nor assuredly of any thing in it: God sees it, because unto his Eternity it is present; he knoweth the ends of us, but not of himself; and because he knows not this, he knoweth all things, and his knowledge is endlesse, even in the object of himself.

Of our B. Saviours
age at his Passion,

*De Doctrina
temporum, li. 4.*

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CHAP. II.

Of mens Enquiries in what season or point of the Zodiack it began, that as they are generally made they are in vain, and as particularly, uncertain.

The world began
in all the 4 quar-
ters of the year.

Concerning the Seasons, that is, the quarters of the year; some are ready to enquire, others to determine, in what season, whether in the Autumn, Spring, Winter or Summer the World had its beginning. Wherein we affirm, that as the question is generally, and in respect of the whole earth proposed, it is most vainly, and with manifest injury unto reason in any particular determined, because when ever the world had its beginning it was created in all these four. For, as we have elsewhere delivered, whatsoever sign the Sunne possesseth (whose recess or vicinity defineth the quarters of the year) those four seasons were actually existent; it being the nature of that Luminary to distinguish the severall seasons of the year; all which it maketh at one time in the whole earth, and successively in any part thereof. Thus if we suppose the Sunne created in Libra, in which signe unto some it maketh Autumne, at the same time it had been winter unto the Northern-pole; for unto them at that time the Sunne beginneth to be invisible, and to shew it self again unto the pole of the South. Unto the position of a right Sphere, or directly under the Æquator; it had been Summer; for unto that situation the Sunne is at that time verticall. Unto the latitude of Capricorne, or the Winter Solstice it had been Spring; for unto that position it had been in a middle point, and that of ascent, or approximation; but unto the latitude of Cancer or the Summer Solstice it had been Autumne; for then had it been placed in a middle point, and that of descent, or elongation.

And if we shall take it literally what Moses described popularly, this was also the constitution of the first day. For when it was evening unto one longitude, it was morning unto another; when night unto one, day unto another. And therefore that question, whether our Saviour shall come again in the twilight (as is conceived he arose) or whether he shall come upon us in the night, according to the comparison of a thief, or the Jewish tradition, that he will come about the time of their departure out of Ægypt, when they ate the Paschever, and the Angel passed by the doors of their houses; this Quere I say needeth not further dispute. For if the earth be almost every where inhabited, and his coming (as Divinity affirmeth) must needs be unto all; then must the time of his appearance be both in the day and night. For if unto Jerusalem, or what part of the world soever he shall appear in the night, at the same time unto the Antipodes it must be day; if twilight unto them, broad day unto the Indians; if noon unto them, yet night unto the Americans; and so with variety according unto various habitations, or different positions of the Sphear, as will be easily conceived by those who understand the affections of different habitations, and the conditions of Antaci, Periaci, and Antipodes. And so although he appear in the night, yet may the day of Judgement or Doomsday well retain that name; for that implieth one revolution of the Sun, which maketh the day and night, and that one naturall day. And yet to speak strictly, if (as the Apostle affirmeth) we shall be changed in the twinkling of an eye (and as the Schools determine) the destruction of the world shall not be successive but in an instant; we cannot properly apply thereto

Nuxhusegr.

thereto the usuall distinctions of time; calling that twelve hours, which admits not the parts thereof, or use at all the name of time, when the nature thereof shall perish.

But if the enquiry be made unto a particular place, and the question determined unto some certain Meridian; as namely, unto Mesopotamia, wherein the seat of Paradise is presumed, the Query becomes more reasonable, and is indeed in nature also determinable; yet positively to define that season, there is no slender difficulty; for some contend that it began in the Spring; as (beside Eusebius, Ambrose, Bede, and Theodoret) some few years past Henrico Philippi in his Chronology of the Scripture. Others are altogether for Autumne; and from hence doe our Chronologers commence their compute; as may be observed in Helvicus, Jos. Scaliger, Calvisius and Petavius.

CHAP. III.

Of the Divisions of the seasons and four quarters of the year, according unto Astronomers and Physitians: that the common compute of the Ancients, and which is still retained by some, is very questionable.

AS for the divisions of the year, and the quartering out this remarkable standard of time, there have passed especially two distinctions; the first in frequent use with Astronomers, according to the cardinall intersections of the Zodiack, that is, the two Æquinoctials and both the Solstitial points; defining that time to be the Spring of the year, wherein the Sunne doth passe from the Æquinox of Aries unto the Solstice of Cancer; the time between the Solstice and the Æquinox of Libra, Summer; from thence unto the Solstice of Capricornus, Autumne; and from thence unto the Æquinox of Aries again, Winter. Now this division although it be regular and equall, is not universall; for it includeth not those latitudes, which have the seasons of the year double; as have the inhabitants under the Æquator, or else between the Tropicks. For unto them the Sunne is verticall twice a year, making two distinct Summers in the different points of verticality. So unto those which live under the Æquator, when the Sun is in the Æquinox it is Summer; in which points it maketh Spring or Autumne unto us; and unto them it is also Winter when the Sunne is in either Tropick; whereas unto us it maketh alwaies Summer in the one. And the like will happen unto those habitations, which are between the Tropicks and the Æquator.

Between the Tropicks two Summers in a year.

A second and more sensible division there is observed by Hippocrates, and most of the ancient Greeks, according to the rising and setting of divers starres; Dividing the year, and establishing the account of seasons from usuall alterations, and sensible mutations in the air, discovered upon the rising and setting of those starres, Accounting the Spring from the Æquinoxiall point of Aries; from the rising of the Pleiades, or the severall starres on the back of Taurus, Summer; from the rising of Arcturus, a starre between the thighes of Bootes, Autumne; and from the setting of the Pleiades, Winter. Of these divisions because they were unequall, they were faine to subdivide the two larger portions, that is of the Summer and Winter quarters; the first part of the Summer they named *ἡερος*, the second unto the arising of the Dog-star, *ῥεος*, from thence unto the setting of Arcturus, *ῥπῶρος*; the Winter they

they divided also into three parts; the first part, or that of seed time they named *σπέρειον*, the middle or proper Winter, *χειμῶν*, the last which was their planting or grafting time *φυτελίαν*. This way of division was in former ages received, is very often mentioned in Poets, translated from one Nation to another; from the Greeks unto the Latines, as is received by good Authors; and delivered by Physicians, even unto our times.

Now of these two, although the first in some latitude may be retained, yet is not the other in any to be admitted. For in regard of time (as we declare in the Chap. of canicular daies) the starres doe vary their longitudes, and consequently the times of their ascension and descension. That starre which is the term of numeration, or point from whence we commence the account, altering his site and longitude in proceſſe of time, and removing from West to East, almost one degree in the space of 72 years; so that the same starre, since the age of Hippocrates who used this account, is removed in *consequentia* about 27 degrees. Which difference of their longitudes, doth much diversifie the times of their ascents, and rendereth the account unstable which shall proceed thereby.

Again, In regard of different latitudes, this cannot be a settled rule or reasonably applied unto many Nations. For whereas the setting of the Pleiades or seven starres is designed the term of Autumne, and the beginning of Winter; unto some latitudes these starres doe never set, as unto all beyond 67 degrees. And if in severall and farre distant latitudes we observe the same starre as a common term of account unto both, we shall fall upon an unexpected, but an unsufferable absurdity; and by the same account it will be Summer unto us in the North, before it be so unto those, which unto us are Southward, and many degrees approaching nearer the Sun. For if we consult the doctrine of the sphere, and observe the ascension of the Pleiades, which maketh the beginning of Summer, we shall discover that in the latitude of 40, these starres arise in the 16 degree of Taurus; but in the latitude of 50 they ascend in the eleventh degree of the same signe, that is 5 daies sooner; so shall it be Summer unto London before it be unto Toledo, and begin to scorch in England, before it grow hot in Spain.

This is therefore no generall way of compute, nor reasonable to be derived from one Nation unto another; the defect of which consideration hath caused divers errors in Latine Poets, translating these expressions from the Greeks; and many difficulties even in the Greeks themselves; which living in divers latitudes, observed yet the same compute. So that to make them out, we are faine to use distinctions; sometime computing cosmically what they intended heliacally; and sometime in the same expression the rising heliacally, the setting cosmically; otherwise it will be hardly made out, what is delivered by approved Authors; and is an observation very considerable unto those which meet with such expressions, as they are very frequent in the Poets of elder times, especially Hesiod, Aratus, Virgil, Ovid, and Manilius; and Authors Geoponicall, or which have treated *de re Rustica*, as Constantine, Marcus Cato, Columella, Palladius and Varro.

Lastly, The absurdity in making common unto many Nations those considerations, whose verity is but particular unto some, will more evidently appear, if we examine the rules and precepts of some one climate; and fall upon consideration with what incongruity they are transferrible unto others; Thus is it advised by Hesiod

Pleiadibus Atlante natæ orientibus

Incipe messē, Arationem vero occidentibus.

Implying hereby the Heliacall ascent and cosmicall descent of those starres.

Now

Now herein he setteth down a rule to begin harvest at the arise of the Pleiades; which in his time was in the beginning of May. This indeed was consonant unto the clime wherein he lived, and their harvest began about that season; but is not applicable unto our own; for therein we are so farre from expecting an harvest, that our Barley seed is not ended. Again, correspondent unto the rule of Hesiod, Virgil affordeth another,

*Ante tibi Eæ Atlantides abscondantur,
Debita quam sulcis committas semina.*

Understanding hereby their Cosmical descent, or their setting when the Sun ariseth, and not their Heliacall obscuration, or their inclusion in the lustre of the Sun, as Servius upon this place would have it; for at that time these starres are many signes removed from that luminary. Now herein he strictly adviseth, not to begin to sow before the setting of these starres; which notwithstanding without injury to agriculture, cannot be observed in England; for they set unto us about the 12th of November, when our seed time is almost ended.

And this diversity of clime and celestially observations, precisely observed unto certain starres and moneths, hath not only overthrown the deductions of one Nation to another, but hath perturbed the observation of festivities and statary solemnities, even with the Jews themselves. For unto them it was commanded that at their entrance into the land of Canaan, in the fourteenth of the first moneth (that is Abib or Nisan which is Spring with us) they should observe the celebration of the Passeeover; and on the morrow after, which is the fifteenth day, the feast of unleavened bread; and in the sixteenth of the same moneth, that they should offer the first sheafe of the harvest. Now all this was feasible and of an easie possibility in the land of Canaan, or latitude of Jerusalem; for so is it observed by severall Authors in later times; and is also testified by holy Scripture in times very farre before; for when the children of Israel passed the river Jordan, it is delivered by way of Parenthesis, that the river overfloweth its banks in the time of harvest; which is conceived the time wherein they passed; and it is after delivered, that in the fourteenth day they celebrated the Passeeover; which according to the Law of Moses was to be observed in the first moneth, or moneth of Abib.

Josh. 3.

Josh. 5.

And therefore it is no wonder, what is related by Luke, that the Disciples upon the Deuteroproton, as they passed by, plucked the ears of corn. For the Deuteroproton or second first Sabbath, was the first Sabbath after the deutra or second of the Passeeover, which was the sixteenth of Nisan or Abib. And this is also evidenced from the received construction of the first and latter rain, delivered Deut. 11. I will give you the rain of your land in his due season, the first rain and the latter rain; for the first rain fell upon the seed-time about October, and was to make the seed to root, the latter was to fill the ear, and fell in Abib or March, the first moneth; according as is expressed Joel 2. And he will cause to come down for you the rain, the former rain and the latter rain in the first moneth; that is the moneth of Abib wherein the Passeeover was observed. This was the Law of Moses, and this in the land of Canaan was well observed according to the first institution; but since their dispersion and habitation in Countries, whose constitutions admit not such tempestivity of harvests; and many not before the latter end of Summer; notwithstanding the advantage of their Lunary account, and intercalary moneth Veader, affixed unto the beginning of the year, there will be found a great disparity in their observations; nor can they strictly and at the same season with their forefathers observe the commands of God.

What the Sabbath
Deuteroproton,
Luk. 6. was.

To adde yet further, those Geoponicall rules and precepts of Agriculture which are delivered by divers Authours, are not to be generally received; but respectively understood unto climes whereto they are determined. For whereas one adviseth to sow this or that at one season, a second to set this or that at another, it must be conceived relatively, and every Nation must have its Countrey Farm; for herein we may observe a manifest and visible difference, not only in the seasons of harvest, but in the graines themselves. For with us Barley-harvest is made after Wheat-harvest, but with the Israelites and Egyptians it was otherwise; so is it expressed by way of priority, Ruth the 2. So Ruth kept fast by the maidens of Boaz to glean unto the end of Barley-harvest and of Wheat-harvest; which in the plague of hayl in Egypt is more plainly delivered Exod.9. And the Flax and the Barley were smitten, for the Barley was in the ear and the Flax was balled, but the Wheat and the Rye were not smitten, for they were not grown up.

And thus we see the account established upon the arise or descent of the stars can be no reasonable rule unto distant Nations at all, and by reason of their retrogression but temporary unto any one. Nor must these respective expressions be entertained in absolute considerations; for so distinct is the relation, and so artificiall the habitude of this inferiour globe unto the superiour, and even of one thing in each unto the other: that generall rules are dangerous; and applications most safe that run with security of circumstance. Which rightly to effect is beyond the subtlety of sense, and requires the artifice of reason.

CHAP. IIII.

Of some computation of daies and diductions of one part of the year unto another.

That the daies encrease and decrease unequally.

Fourthly, There are certain vulgar opinions concerning daies of the year, and conclusions popularly deduced from certain daies of the moneth; men commonly beleeving the daies encrease and decrease equally in the whole year; which notwithstanding is very repugnant unto truth. For they encrease in the moneth of March, almost as much as in the two moneths of January and February; and decrease as much in September, as they do in July and August. For the daies encrease or decrease according to the declination of the Sun, that is, its deviation Northward or Southward from the Equator. Now this digression is not equall, but near the Equinoxiall intersections, it is right and greater, near the Solstices more oblique and lesser. So from the eleventh of March the vernall Equinox, unto the eleventh of April the Sun declineth to the North twelve degrees; from the eleventh of April unto the eleventh of May but eight, from thence unto the fifteenth of June, or the Summer Solstice but three and a half; all which make thirty two degrees and an half, the greatest declination of the Sunne.

And this inequality in the declination of the Sunne in the Zodiack or line of life, is correspondent unto the growth or declination of man. For setting out from infancie we encrease not equally, or regularly attain to our state or perfection; nor when we descend from our state, is our declination equall, or carrieth us with even paces unto the grave. For, as Hippocrates affirmeth, a man is hottest in the first day of his life, and coldest in the last; his naturall heat setteth forth most vigorously at first, and declineth most sensibly at last.

And

And so though the growth of man end not perhaps untill twenty one, yet is his stature more advanced in the first septenary then in the second, and in the second, more then in the third, and more indeed in the first seven years, then in the fourteen succeeding; for, what stature we attain unto at seven years, we do sometimes but double, most times come short of at one and twenty. And so doe we decline again; for in the latter age upon the Tropick and first descension from our solstice, we are scarce sensible of declination; but declining further, our decrement accelerates, we set apace, and in our last daies precipitate into our graves. And thus are also our progressions in the womb, that is, our formation, motion, our birth or exclusion. For our formation is quickly effected, our motion appeareth later, and our exclusion very long after: if that be true which Hippocrates and Avicenna have declared, that the time of our motion is double unto that of formation, and that of exclusion treble unto that of motion. As if the Infant be formed at thirty five daies, it moveth at seventy, and is born the two hundred and tenth day, that is, the seventh moneth; or if it receives not formation before fourty five daies, it moveth the ninetieth day, and is excluded in the two hundred and seventy, that is the ninth moneth.

The naturall proportion of humane growth &c. In the world,

and in the wombe,

There are also certain popular prognosticks drawn from festivals in the Calendar, and conceived opinions of certain daies in moneths; so is there a generall tradition in most parts of Europe, that inferreth the coldnesse of succeeding winter from the shining of the Sunne upon Candlemas day, or the Purification of the Virgin Mary, according to the proverbiall distich,

Si Sol splendescat Mariâ purificante,

Major erit glacies post festum quam fuit ante.

So is it usuall amongst us to qualifie and conditionate the twelve moneths of the year, answerably unto the temper of the twelve daies in Christmas; and to ascribe unto March certain borrowed daies from April: all which men seem to beleieve upon annuall experience of their own, and the received traditions of their forefathers.

Now it is manifest, and most men likewise know, that the Calendars of these computers, and the accounts of these daies are very different; the Greeks dissenting from the Latines, and the Latines from each other: the one observing the Julian or ancient account, as great Brittain and part of Germany; the other adhering to the Gregorian or new account, as Italy, France, Spain, and the united Provinces of the Netherlands. Now this latter account by ten daies at least anticipateth the other; so that before the one beginneth the account, the other is past it; yet in the severall calculations, the same events seem true, and men with equall opinion of verity, expect and confesse a confirmation from them. Whereby is evident the Oraculous authority of tradition, and the easie seduction of men, neither enquiring into the verity of the substance, nor reforming upon repugnance of circumstance.

And thus may diverse easily be mistaken who superstitiously observe certain times, or set down unto themselves an observation of unfortunate moneths, or daies, or hours; As did the Egyptians, two in every moneth, and the Romans, the daies after the Nones, Ides and Calends. And thus the Rules of Navigators must often fail, setting down, as Rhodiginus observeth, suspected and ominous daies, in every moneth, as the first and seventh of March, the fift and sixt of April, the sixt, the twelfth and fifteenth of February. For the accounts hereof in these moneths are very different in our daies, and were different with severall nations in Ages past; and how strictly soever the account be made, and even by the self same Calendar, yet is it

it possible that Navigators may be out. For so were the Hollanders, who passing Westward through *fretum le Mayre*, and compassing the Globe, upon their return into their own Countrey, found that they had lost a day. For if two men at the same time travell from the same place, the one Eastward, the other Westward round about the earth, and meet in the same place from whence they first set forth; it will so fall out, that he which hath moved Eastward against the diurnall motion of the Sun, by anticipating daily something of its circle with his own motion, will gain one day; but he that travelleth Westward, with the motion of the Sun, by seconding its revolution, shall lose or come short a day. And therefore also upon these grounds that Delos was seated in the middle of the earth, it was no exact decision, because two Eagles let fly East and West by Jupiter, their meeting fell out just in the Island Delos.

CHAP. V.

A Digression of the wisdom of God in the site and motion of the Sunne.

HAVING thus beheld the ignorance of man in some things, his error and blindenesse in others, that is, in the measure of duration both of years and seasons, let us a while admire the Wisdom of God in this distinguisher of times, and visible Deity (as some have termed it) the Sunne; which though some from its glory adore, and all for its benefits admire, we shall advance from other considerations; and such as illustrate the artifice of its Maker. Nor do we think we can excuse the duty of our knowledge, if we only bestow the flourish of Poetry hereon, or those commendatory conceits which popularly set forth the eminency of this creature; except we ascend unto subtiler considerations, and such as rightly understood, convincingly declare the wisdom of the Creator. Which since a Spanish Physitian hath begun, we will enlarge with our deductions; and this we shall endeavour from two considerations; its proper situation, and wisely ordered motion.

And first, we cannot passe over his providence in that it moveth at all; for had it stood still, and were it fixed like the earth, there had been then no distinction of times, either of day or year, of Spring, of Autumn, of Summer or of Winter; for these seasons are defined by the motions of the Sunne; when that approacheth nearest our Zenith or verticall point, we call it Summer, when furthest off, Winter, when in the middle spaces, Spring or Autumn; whereas remaining in one place these distinctions had ceased, and consequently the generation of all things depending on their vicissitudes; making in one hemisphere a perpetuall Summer, in the other a deplorable and comfortlesse Winter. And thus had it also been continuall day unto some, and perpetuall night unto others; for the day is defined by the abode of the Sun above the Horizon, and the night by its continuance below; so should we have needed another Sunne, one to illustrate our Hemisphere, a second to enlighten the other; which inconvenience will ensue, in what site soever we place it, whether in the poles, or the Æquator, or between them both; no sphericall body of what bignesse soever illuminating the whole sphere of another, although it illuminate something more then half of a lesser, according unto the doctrine of the Opticks.

His wisdom is again discernable, not only in that it moveth at all, and in

its

Valerius de
Philos. Sacr.

Account no
Copernican
book 59 * 15.
325. 250.

What the naturall
day is,

Every part of the
Earth habitable.

its bare motion, but wonderfull in contriving the line of revolution; which from his artifice is so effected, that by a vicissitude in one body and light, it sufficeth the whole earth, affording thereby a possible or pleasurable habitation in every part thereof; and that is the line Ecliptick; all which to effect by any other circle it had been impossible. For first, if we imagine the Sunne to make his course out of the Ecliptick, and upon a line without any obliquity, let it be conceived within that Circle, that is, either on the *Æquator*, or else on either side (for if we should place it either in the Meridian or Colures, beside the subversion of its course from East to West, there would ensue the like inconveniences.) Now if we conceive the Sun to move between the obliquity of this Ecliptick in a line upon one side of the *Æquator*, then would the Sunne be visible but unto one pole, that is, the same which was nearest unto it. So that unto the one it would be perpetuall day, unto the other perpetuall night; the one would be oppressed with constant heat, the other with insufferable cold; and so the defect of alternation would utterly impugn the generation of all things, which naturally require a vicissitude of heat to their production, and no lesse to their increase and conservation.

But if we conceive it to move in the *Æquator*; first, unto a parallel sphere, or such as have the pole for their Zenith, it would have made neither perfect day nor night. For being in the *Æquator* it would intersect their Horizon, and be half above and half beneath it, or rather it would have made perpetuall night to both: for though in regard of the rationall Horizon, which bissecteth the Globe into equall parts, the Sunne in the *Æquator* would intersect the Horizon: yet in respect of the sensible Horizon (which is defined by the eye) the Sunne would be visible unto neither. For if as ocular witnesses report, and some do also write, by reason of the convexity of the Earth, the eye of man under the *Æquator* cannot discover both the poles, neither would the eye under the poles discover the Sunne in the *Æquator*. Thus would there nothing fructifie either near or under them, the Sun being Horizontall to the poles, and of no considerable altitude unto parts a reasonable distance from them. Again, unto a right sphere, or such as dwell under the *Æquator*, although it made a difference in day and night, yet would it not make any distinction of seasons: for unto them it would be constant Summer, it being alwaies verticall, and never deflecting from them: So had there been no fructification at all, and the Countries subjected would be as uninhabitable, as indeed antiquity conceived them.

Lastly, It moving thus upon the *Æquator*, unto what position soever, although it had made a day, yet could it have made no year; for it could not have had those two motions now ascribed unto it, that is, from East to West, whereby it makes the day, and likewise from West to East, whereby the year is computed. For according to Astronomy, the poles of the *Æquator* are the same with those of the *Primum Mobile*. Now it is impossible that on the same circle, having the same poles, both these motions from opposite terms, should be at the same time performed; all which is salved, if we allow the Sunne an obliquity in his annuall motion, and conceive him to move upon the poles of the Zodiack, distant from these of the world 23 degrees and an half. Thus may we discern the necessity of its obliquity, and how inconvenient its motion had been upon a circle parallel to the *Æquator*, or upon the *Æquator* it self.

Now with what providence this obliquity is determined, we shall perceive upon the ensuing inconveniences from any deviation. For first, if its obliquity had been lesse (as in stead of twenty three degrees, twelve or the half

thereof) the vicissitude of seasons appointed for the generation of all things, would surely have been too short; for different seasons would have huddled upon each other, and unto some it had not been much better then if it had moved on the *Æquator*. But had the obliquity been greater then now it is, as double or of 40 degrees; severall parts of the earth had not been able to endure the disproportionable differences of seasons, occasioned by the great recesses, and distance of the Sunne; for unto some habitations the Summer would have been extream hot, and the Winter extream cold; likewise the Summer temperate unto some, but excessive and in extremity unto others, as unto those who should dwell under the Tropick of Cancer, as then would do some part of Spain, or ten degrees beyond, as Germany, and some part of England; who would have Summers as now the Moors of Africa; for the Sun would sometime be verticall unto them: but they would have Winters like those beyond the Artick Circle, for in that season the Sun would be removed above 80 degrees from them. Again, it would be temperate to some habitations in the Summer, but very extream in the Winter: temperate to those in two or three degrees beyond the Artick Circle, as now it is unto us; for they would be equidistant from that Tropick, even as we are from this at present; but the Winter would be extreme, the Sunne being removed above an hundred degrees, and so consequently would not be visible in their Horizon; no position of sphere discovering any Starre distant above 90 degrees, which is the distance of every Zenith from the Horizon. And thus if the obliquity of this Circle had been lesse, the vicissitude of seasons had been so small as not to be distinguished; if greater, so large and disproportionable as not to be endured.

A competent distinction of seasons necessary, and why.

Now for its situation, although it held this Ecliptick line, yet had it been seated in any other Orbe, inconveniences would ensue of condition like the former; for had it been placed in the lowest sphere, and where is now the Moon, the year would have consisted but of one moneth; for in that space of time it would have passed through every part of the Ecliptick; so would there have been no reasonable distinction of seasons required for the generation and fructifying of all things; contrary seasons which destroy the effects of one another, so suddenly succeeding. Besides by this vicinity unto the earth its heat had been intollerable: for if (as many affirm) there is a different sense of heat from the different points of its proper orbe, and that in the Apogeeum or highest point (which happeneth in Cancer) it is not so hot under that Tropick, on this side the *Æquator*, as unto the other side in the Perigeum or lowest part of the eccentric (which happeneth in Capricornus) surely being placed in an orbe farre lower, its heat would be unsufferable; nor needed we a fable to set the world on fire.

But had it been placed in the highest Orbe or that of the eight sphere, there had been none but Platoes year, and a farre lesse distinction of seasons; for one year had then been many; and according unto the slow revolution of that orbe which absolveth not his course in many thousand years, no man had lived to attain the account thereof. These are the inconveniences ensuing upon its situation in the extreme orbs, and had it been placed in the middle orbs of the Planets, there would have ensued absurdities of a middle nature unto them.

248. Now whether we adhere unto the hypothesis of Copernicus, affirming the Earth to move, and the Sunne to stand still; or whether we hold as some of late have concluded from the spots in the Sunne, which appear and disappear again; that besides the revolution it maketh with its Orbs, it hath also a di-
neticall motion and rowles upon its own Poles; whether I say we affirm these
or

or no, the illations before mentioned are not thereby infringed. We therefore conclude this contemplation, and are not afraid to beleave, it may be literally said of the wisdom of God, what men will have figuratively spoken of the works of Christ; that if the wonders thereof were duly described, the whole world, that is, all within the last circumference, would not contain them. For as his wisdom is infinite, so cannot the due expressions thereof be finite; and if the world comprise him not, neither can it comprehend the story of him.

CHAP. VI.

Concerning the vulgar opinion that the earth was slenderly peopled before the Flood.

BESIDE the slender consideration men of later times doe hold of the first ages, it is commonly opinioned, and at first thought generally imagined, that the Earth was thinly inhabited, at least not remotely planted before the the Flood; so that some conceiving it needlesse to be universall, have made the deluge particular, and about those parts where Noah built his Arke. Which opinion because it is not only injurious to the Text, humane history, and common reason, but also derogatory unto that great work of God, the universall inundation; it will be needfull to make some further inquisition; and (although predetermined by opinion) whether many might nor suffer in the first Flood, as they shall in the last Flame, that is, who knew not Adam nor his offence; and many perish in the deluge, who never heard of Noah or the Arke of his preservation.

Now for the true enquirie thereof, the means are as obscure as the matter, which being naturally to be explored by History humane or divine, receiveth thereby no small addition of obscurity. For as for humane relations, they are so fabulous in Deucalions flood, that they are of little credit about Ogyges and Noahs. For the Heathens (as Varro accounteth) make three distinctions of time: the first from the beginning of the World unto the generall Deluge of Ogyges, they terme *Adelon*, that is, a time not much unlike that which was before time, immanifest and unknown, because thereof there is almost nothing or very obscurely delivered: for though divers Authors have made some mention of the Deluge, as Manethon the Egyptian Priest, *Xenophon de equivocis*, *Fabius Pictor de Aurco seculo*, *Mar. Cato de originibus*, and Archilochus the Greek, who introduceth also the testimony of Moses in his fragment *de temporibus*: yet have they delivered no account of what preceded or went before. Josephus I confesse in his Discourse against Appion induceth the antiquity of the Jews unto the Flood, and before, from the testimony of humane Writers; insisting especially upon Maseas of Damascus, Jeronymus Egyptianus, and Berofus; and confirming the long duration of their lives, not only from these, but the authority of Hesiod, Erathius, Hellanicus and Agefilaus. Berofus the Chaldean Priest, writes most plainly, mentioning the City of Enos, the name of Noah and his sonnes, the building of the Arke, and also the place of its landing. And Diodorus Siculus hath in his third book a passage which examined advanceth as high as Adam; for the Chaldeans, saith he, derive the originall of their Astronomy and letters fourty three thousand years before the Monarchy of Alexander the Great; now the years whereby they computed the antiquity of their letters being as Xenophon interprets to be

accounted Lunary ; the compute will arise unto the time of Adam : for fourty three thousand Lunary years make about three thousand six hundred thirty four years ; which answereth the Chronology of time from the beginning of the world unto the reign of Alexander, as Annius of Viterbo computeth in his Comment upon Berofus.

The second space or intervall of time is accounted from the flood unto the first Olympiad, that is the year of the world 3174, which extendeth unto the daies of Ifaiah the Prophet, and some twenty years before the foundation of Rome ; this they term *Mythicon* or fabulous, because the account thereof, especially of the first part, is fabulously or imperfectly delivered. Hereof some things have been briefly related by the Authors above mentioned ; more particularly by Dares Phrygius, Dictys Cretensis, Herodotus, Diodorus Siculus, and Trogus Pompeius ; the most famous Greek Poets lived also in this Intervall, as Orpheus, Linus, Musæus, Homer, Hesiod ; and herein are comprehended the grounds and first inventions of Poeticall fables, which were also taken up by historicall Writers, perturbing the Chaldean and Egyptian Records with fabulous additions, and confounding their names and stories, with their own inventions.

The third time succeeding untill their present ages, they term *Historicon*, that is, such wherein matters have been more truly historified, and may therefore be beleaved. Of these times also have written Herodotus, Thucydides, Xenophon, Diodorus ; and both of these and the other preceding such as have delivered universall Histories or Chronologies ; as (to omit Philo, whose Narrations concern the Hebrews) Eusebius, Julius Africanus, Orosius, Ado of Vienna, Marianus Scotus, *Historia tripartita*, *Urspergensis*, Carion, Pineda, Salian, and with us S^r Walter Raleigh.

Now from the first hereof that most concerneth us, we have little or no assistance, the fragments and broken records hereof inforcing not at all our purpose ; and although some things not usually observed, may be from thence collected, yet doe they not advantage our discourse, nor any way make evident the point in hand. For the second, though it directly concernes us not, yet in regard of our last medium and some illustrations therein, we shall be constrained to make some use thereof. As for the last it concernes us not at all ; for treating of times farre below us, it can no way advantage us. And though divers in this last Age have also written of the first, as all that have delivered the generall accounts of time, yet are their Treatates little auxiliary unto ours, nor afford us any light to detenebrate and clear this truth.

As for holy Scripture and divine relation, there may also seem therein but slender information, there being only left a brief narration hereof by Moses, and such as affords no positive determination. For the text delivereth but two genealogies, that is, of Cain and Seth ; in the line of Seth there are only ten descents, in that of Cain but seven, and those in a right line with mention of father and sonne ; excepting that of Lamech, where is also mention of wives, sons, and a daughter. Notwithstanding if we seriously consider what is delivered therein, and what is also deducible, it will be probably declared what is by us intended, that is, the populous and ample habitation of the earth before the flood. Which we shall labour to induce not from postulates and entreated Maximes, but undeniable principles declared in holy Scripture ; that is, the length of mens lives before the flood, and the large extent of time from the Creation thereunto.

We shall only first crave notice, that although in the relation of Moses there be very few persons mentioned, yet are there many more to be presumed ;

That the earth was
generally peopled
before the flood.

med; nor when the Scripture in the line of Seth nominates but ten persons, are they to be conceived all that were of this generation; the Scripture singly delivering the holy line, wherein the world was to be preserved, first in Noah, and afterward in our Saviour. For in this line it is manifest there were many more born than are named; for it is said of them all, that they begat sonnes and daughters. And whereas it is very late before it is said they begat those persons which are named in the Scripture, the soonest at 65, it must not be understood that they had none before; but not any in whom it pleased God the holy line should be continued. And although that expression that they begat sonnes and daughters be not determined to be before or after the mention of these, yet must it be before in some; for before it is said that Adam begat Seth at the 130 year, it is plainly affirmed that Cain knew his wife, and had a son; which must be one of the daughters of Adam, one of those whereof it is after said, he begat sons and daughters. And so for ought can be disproved there might be more persons upon earth then are commonly supposed, when Cain slew Abel; nor the fact so hainously to be aggravated in the circumstance of the fourth person living. And whereas it is said upon the nativity of Seth, God hath appointed me another seed instead of Abel, it doth not imply he had no other all this while, but not any of that expectation, or appointed (as his name implies) to make a progression in the holy line; in whom the world was to be saved, and from whom he should be born, that was mystically slain in Abel.

Now our first ground to induce the numerosity of people before the flood, is the long duration of their lives, beyond 7, 8 and 9 hundred years. Which how it conduceth unto populousity we shall make but little doubt, if we consider there are two main causes of numerosity in any kinde or species; that is, a frequent and multiparous way of breeding, whereby they fill the world with others, though they exist not long themselves; or a long duration and subsistence, whereby they do not only replenish the world with a new annumeration of others, but also maintain the former account in themselves. From the first cause we may observe examples in creatures oviparous, as Birds and Fishes; in vermiparous, as Flies, Locusts and Gnats; in animals also viviparous, as Swine and Conies. Of the first there is a great example in the herd of Swine in Galilee, although it were an unclean beast, and forbidden unto the Jews. Of the other a very remarkable one in Atheneus, in the Isle Astipalea; one of the Cyclades now called Stampalia, wherein from two that were imported, the number so encreased, that the Inhabitants were constrained to have recourse unto the Oracle of Delphos, for an invention how to destroy them.

Others there are which make good the paucity of their breed with the length and duration of their daies, whereof there want not examples in animals uniparous: First, in bifulcous or cloven-hooft, as Camels, and Beeves, whereof there is above a million annually slain in England. It is also said of Job, that he had a thousand yoke of Oxen, and six thousand Camels; and of the children of Israel passing into the land of Canaan, that they took from the Midianites threescore and ten thousand Beeves; and of the Army of Semiramis, that there were therein one hundred thousand Camels; for Solipeds or firm-hoofed animals, as Horses, Asses, Mules, &c. they are also in mighty numbers; so is it delivered that Job had a thousand she Asses: that the Midianites lost sixty one thousand Asses. For Horses it is affirmed by Diodorus, that Ninus brought against the Bactrians two hundred eighty thousand Horses; after him Semiramis five hundred thousand Horses, and Chariots one hundred thousand. Even in creatures sterill and such as do not generate,

A Million of
Beeves yearly
killed in England;

the length of life conduceth much unto the multiplicity of the species; for the number of Mules which live farre longer then their Dammes or Sires, in countries where they are bred is very remarkable, and farre more common then Horses.

For animals multifoldous, or such as are digitated or have severall divisions in their feet, there are but two that are uniparous, that is, Men and Elephants; in whom though their generations be but single, they are notwithstanding very numerous. The Elephant (as Aristotle affirmeth) carrieth the young two years and conceiveth not again (as Edvardus Lopez affirmeth) in many after; yet doth their age requite this disadvantage, they living commonly one hundred, sometime two hundred years. Now although they be unusuall with us in Europe, and altogether unknown unto America, yet in the two other parts they are abundant, as evidently appears by the relation of *Gorcias ab Horto*, Physitian to the Viceroy at Goa; who in his Chapter *de Eloro*, relates that at one venation the King of Sian took four thousand; and is of opinion they are in other parts, in greater number then herds of Beeves in Europe. And though this delivered from a Spaniard unacquainted with our Northern droves, may seem very farre to exceed; yet must we conceive them very numerous, if we consider the number of teeth transported from one Countrey to another; they having only two great teeth, and those not falling or renewing.

As for man, the disadvantage in his single issue is the same with these, and in the lateness of his generation somewhat greater then any; yet in the continuall and not interrupted time thereof, and the extent of daies, he becomes at present, if not then any other species, at least more numerous then these before mentioned. Now being thus numerous at present, and in the measure of threescore, fourscore or an hundred years, if their daies extended unto six, seven, or eight hundred, their generations would be proportionably multiplied; their times of generation being not only multiplied, but their subsistence continued. For though the great Grandchilde went on, the Petrucius and first Originall would subsist and make one of the world; though he outlived all the termes of consanguinity, and became a stranger unto his proper progeny. So by compute of Scripture Adam lived unto the ninth generation, unto the daies of Lamech the father of Noah; Methuselah unto the year of the flood, and Noah was contemporary unto all from Enoch unto Abraham. So that although some died, the father beholding so many descents, the number of survivors must still be very great; for if half the men were now alive, which lived in the last Century, the earth would scarce contain their number. Whereas in our abridged and septuagesimal ages, it is very rare and deserves a distich to behold the fourth generation: Xerxes complaint still remaining; and what he lamented in his Army, being almost deplorable in the whole world; men seldom ariving unto those years whereby Methuselah exceeded nine hundred, and what Adam came short of a thousand, was defined long agoe to be the age of man.

Now although the length of daies conduceth mainly unto the numerosity of mankind, and it be manifest from Scripture they lived very long, yet is not the period of their lives determinable, and some might be longer livers, then we account that any were. For (to omit that conceit of some, that Adam was the oldest man, in as much as he is conceived to be created in the maturity of mankind, that is, at 60 (for in that age it is set down they begat children) so that adding this number unto his 930, he was 21 years older then any of his posterity) that even Methuselah was the longest lived of all the children of Adam, we need not grant; nor is it definitively set down

by

The age of an Elephant,

The terme for that person from whom consanguineall relations are accounted, as in the *Arbor civilis*.

Mater ait natae dic natae filia, &c.

Gen. 293. 9.

by Moses. Indeed of those ten mentioned in Scripture, with their severall ages it must be true; but whether those seven of the line of Cain and their progeny, or any of the sons or daughters posterity after them outlived those, is not expressed in holy Scripture; and it will seem more probable that of the line of Cain, some were longer lived then any of Seth, if we concede that seven generations of the one lived as long as nine of the other. As for what is commonly alledged, that God would not permit the life of any unto a thousand, because (alluding unto that of David) no man should live one day in the sight of the Lord; although it be urged by divers, yet is it methinks an inference somewhat Rabbinicall; and not of power to perswade a serious examiner.

Having thus made manifest in generall how powerfully the length of lives conduced unto populousity of those times, it will yet be easier acknowledged if we descend to particularities, and consider how many in seven hundred years might descend from one man; wherein considering the length of their daies, we may conceive the greatest number to have been alive together. And this that no reasonable spirit may contradict, we will declare with manifest disadvantage; for whereas the duration of the world unto the flood was above 1600 years, we will make our compute in lesse then half that time. Nor will we begin with the first man, but allow the earth to be provided of women fit for marriage the second or third first Centuries; and will only take as granted, that they might beget children at sixty, and at an hundred years have twenty, allowing for that number forty years. Nor will we herein single out Methuselah, or account from the longest livers, but make choice of the shortest of any we finde recorded in the Text, excepting Enoch; who after he had lived as many years as there be daies in the year, was translated at 365. And thus from one stock of seven hundred years, multiplying still by twenty, we shall finde the product to be one thousand, three hundred forty seven millions, three hundred sixty eight thousand, four hundred and twenty.

	1	20.
	2	400.
	3	8000.
Century	4	160,000.
	5	3,200,000.
	6	46,000,000.
	7	1,280,000,000.

The Product 1,347,368,420

Now had we computed by Methuselah the summe had exceeded five hundred thousand millions. As large a number from one stock as may be conceived in Europe; especially if in Constantinople the greatest City thereof, there be no more then Botero accounteth; seven hundred thousand souls. Which duly considered, we shall rather admire how the earth contained its inhabitants, then doubt its inhabitation; and might conceive the deluge not simply penall, but in some way also necessary; as many have conceived of translations, if Adam had not sinned, and the race of man had remained upon earth immortall.

Now whereas some to make good their longevity, have imagined that the years of their compute were Lunary; unto these we must reply; That if by a Lunary year they understand twelve revolutions of the Moon, that is, 354 daies, eleven fewer then in the Solary year; there will be no great difference; at least not sufficient to convince or extenuate the question. But if

Constantinople
the greatest City
of Europe.

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by a Lunary year they mean one revolution of the Moon, that is, a moneth; they first introduce a year never used by the Hebrews, in their Civil accompts; and what is delivered before of the Chaldean years (as Xenophon gives a caution) was only received in the Chronology of their Arts. Secondly, they contradict the Scripture, which makes a plain enumeration of many moneths in the account of the Deluge; for so it is expressed in the Text. In the tenth moneth, in the first day of the moneth were the tops of the mountains seen; Concordant whereunto is the relation of humane Authors, for so saith Xenophon *de Equivocis*, *Inundationes plures fuere, prima novimestris inundatio terrarum sub prisco Ogyge*; and the like also Solinus, *Meminiſſe hoc loco par eſt poſt primum diluvium Ogygi temporibus notatum, cum novem & amplius menſibus diem continua nox inumbraret, Delon ante omnes terras radiis ſolis illuminatum ſortitumque ex eo nomen*. And laſtly, they fall upon an abſurdity, for they make Enoch to beget children about ſix years of age. For whereas it is ſaid he begat Methuſelah at 65, if we ſhall account every moneth a year, he was at that time ſome ſix years and an half, for ſo many moneths are contained in that ſpace of time.

Having thus declared how much the length of mens lives conduced unto the populousity of their kinde, our ſecond foundation muſt be the large extent of time, from the Creation unto the Deluge; that is (according unto received computes about 1655 years) a longer time then hath paſſed ſince the nativity of our Saviour; and which we cannot but conceive ſufficient for a very large encrease, if we doe but affirm what reaſonable enquirers will not deny; That the earth might be as populous in that number of years before the flood, as we can manifeſt it was in the ſame number after. And whereas there may be conceived ſome diſadvantage, in regard that at the Creation the originall of mankind was in two perſons, but after the flood their propagation iſſued at leaſt from ſix; againſt this we might very well ſet the length of their lives before the flood, which were abbreviated after, and in half this ſpace contracted into hundreds and threſcores. Notwithſtanding to equalize accounts, we will allow three hundred years, and ſo long a time as we can manifeſt from the Scripture, There were four men at leaſt that begat children, Adam, Cain, Seth and Enos; ſo ſhall we fairly and favourably proceed if we affirm the world to have been as populous in ſixteen hundred and fifty years before the flood, as it was in thirteen hundred after. Now how populous and largely inhabited it was within this period of time, we ſhall declare from probabilities, and ſeverall teſtimonies of Scripture and humane Authors.

And firſt, To manifeſt the ſame near thoſe parts of the earth where the Ark is preſumed to have reſted, we have the relation of holy Scripture accounting the genealogy of Japhet, Cham and Sem, and in this laſt, four deſcents unto the diviſion of the earth in the daies of Peleg, which time although it were not upon common compute much above an hundred years, yet were they at this time mightily encreaſed. Nor can we well conceive it otherwiſe, if we conſider they began already to wander from their firſt habitation, and were able to attempt ſo mighty a work as the building of a City and a Tower, whoſe top ſhould reach unto the heavens. Whereunto there was required no ſlender number of perſons, if we conſider the magnitude thereof, expreſſed by ſome, and conceived to be *Turris Babel* in Herodotus; and the multitudes of people recorded at the erecting of the like or inferiour ſtructures: for at the building of Solomons Temple there were threſcore and ten thouſand that carried burdens, and fourſcore thouſand hewers in the mountains, beſide the chief of his officers three thouſand and three hundred; and

and at the erecting of the Pyramids in the reign of King Cheops, as Herodotus reports there were *decem myriades*, that is an hundred thousand men. And though it be said of the Egyptians, *Porrū & cape nefas violare & frangere morsu*; yet did the summes expended in Garlick and Onyons amount unto no lesse then one thousand six hundred Talents.

Juvenal.

The first Monarchy or Kingdome of Babylon is mentioned in Scripture under the foundation of Nimrod, which is also recorded in humane history; as beside Berofus, in Diodorus and Justine; for Nimrod of the Scriptures is Belus of the Gentiles, and Assur the same with Ninus his successour. There is also mention of divers Cities, particularly of Ninivy and Resen expressed emphatically in the Text to be a great City.

Who Nimrod and Assur were.

That other Countries round about were also peopled, appears by the Wars of the Monarchs of Assyria with the Bactrians, Indians, Scythians, Ethiopians, Armenians, Hyrcanians, Parthians, Persians, Sufians; they vanquishing (as Diodorus relateth) Egypt, Syria, and all Asia minor, even from Bosphorus unto Tanais. And it is said, that Semiramis in her expedition against the Indians, brought along with her the King of Arabia. About the same time of the Assyrian Monarchy, doe Authors place that of the Sycionians in Greece, and soon after that of the Argives, and not very long after, that of the Athenians under Cecrops; and within our period assumed are historified many memorable actions of the Greeks, as the expedition of the Argonauts, with the most famous Wars of Thebes and Troy.

That Canaan also and Egypt were well people farre within this period, besides their plantation by Canaan and Misraim, appeareth from the history of Abraham, who in lesse then 400 years after the Flood, journeyed from Mesopotamia unto Canaan and Egypt; both which he found well peopled and policied into Kingdoms; wherein also in 430 years, from threescore and ten persons which came with Jacob into Egypt, he became a mighty Nation: for it is said, at their departure, there journeyed from Rhamesis to Succoth about six hundred thousand on foot, that were men, besides children. Now how populous the land from whence they came was, may be collected not only from their ability in commanding so mighty subjections, but from the severall accounts of that Kingdom delivered by Herodotus. And how soon it was peopled is evidenced from the pillar of their King Osyris, with this inscription in Diodorus; *Mihi pater est Saturnus deorum junior, sum vero Osyris rex qui totum peragravi orbem usq; ad Indorum fines, ad eos quoq; sum profectus qui septentrioni subjacent usq; ad Istri fontes, & alias partes usq; ad Oceanum.* Now according unto the best determinations Osyris was Mizraim, and Saturnus Egyptius the same with Cham; after whose name Egypt is not only called in Scripture the land of Ham, but thus much is also testified by Plutarch; for in his Treatise *de Osyride*, he delivereth that Egypt was called *Chamia* a *Chamo Nee filio*, that is, from Cham the sonne of Noah. And if according to the consent of ancient Fathers, Adam was buried in the same place, where Christ was crucified, that is, Mount Calvary, the first man ranged farre before the Flood, and laid his bones many miles from that place, where its presumed he received them. And this migration was the greater, if as the text expresseth, he was cast out of the East-side of Paradise to till the ground; and as the Position of the Cherubins implieth, who were placed at the east end of the garden, to keep him from the tree of life.

Who Osyris and Saturnus Egyptius were.

That the extreme and remote parts of the earth were in this time inhabited, is also induceable from the like testimonies; for (omitting the numeration of Iosephus, and the genealogies of the sonnes of Noah) that Italy was inhabited appeareth from the Records of Livie, and Dionysius Halicarnassensis,

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the story of Æneas, Evander, and Janus, whom Annius of Viterbo, and the Chorographers of Italy, do make to be the same with Noah. That Sicily was also peopled, is made out from the frequent mention thereof in Homer; the Records of Diodorus and others; but especially from a remarkable passage touched by Aretius and Ranzanus Bishop of Lucerium, but fully explained by Thomas Fazelli in his accurate history of Sicily; that is, from an ancient inscription in a stone at Panormo, expressed by him in its proper characters, and by a Syrian thus translated: *Non est alius Deus præter unum Deum, non est alius potens præter eundem Deum, neque est alius victor præter eundem quem colimus Deum: Hujus turris præfectus est Sapha filius Eliphar, filij Esau, fratris Jacob, filij Isaac, filij Abraham; & turri quidem ipsi nomen est Baych, sed turri huic proxima nomen est Pharath.* The antiquity of the inhabitation of Spain is also confirmable, not only from Berosus in the plantation of Tuball and a City continuing yet in his name, but the story of Gerion, the travels of Hercules and his pillars; and especially a passage in Strabo, which advanceth unto the time of Ninus, thus delivered in his fourth book. The Spaniards (saith he) affirm that they have had Laws and letters above six thousand years. Now the Spaniards or Iberians observing (as Xenophon hath delivered) *Annum quadrimestrem*, four moneths unto a year, this compute will make up 2000 Solary years, which is about the space of time from Strabo who lived in the daies of Augustus, unto the reign of *Ninus*.

That Mauritania and the coast of Africa were peopled very soon, is the conjecture of many wise men, and that by the Phœnicians; who left their Countrey upon the invasion of Canaan by the Israelites. For beside the conformity of the Punick or Carthaginean language with that of Phœnicia, there is a pregnant and very remarkable testimony hereof in Procopius, who in his second *de bello Vandalico*, recordeth, that in a Town of Mauritania Tingitana, there was to be seen upon two white Columns in the Phœnician language these ensuing words; *Nos Maurici sumus qui fugimus à facie Jeshuschua filij Nunis prædatoris.* The fortunate Islands or Canaries were not unknown; for so doth Strabo interpret that speech in Homer of Proteus unto Menelaus,

*Sed te qua terre postremus terminus extat,
Elysum in Campum cœlestia numina ducunt.*

The like might we affirm from credible histories both of France and Germany, and probably also out of our own Countrey; for omitting the fabulous and Trojan originall delivered by Jeofrey of Monmouth, and the expresse text of Scripture, that the race of Japhet did people the Isles of the Gentiles; (in which number this of ours hath been specially accounted) their originall was so obscure in Cæsars time, that he affirmeth the Inland inhabitants were Aborigines, that is, such as reported, that they had their beginning in the Island. That Ireland our neighbour Island was not long time without Inhabitants, may be made probable by sundry accounts, although we abate the Tradition of Bartholanus the Scythian, who arrived there three hundred years after the Flood, or the relation of Giraldus, that Cæsaria the daughter of Noah dwelt there before.

Now should we call in the learned account of Bochartus, deducing the ancient names of Countries from Phœnicians, who by their plantations, discoveries, and sea negotiations, have left unto very many Countries, Phœnician denominations; the enquiry would be much shorter. And if Spain in the Phœnician originall, be but the region of Conies, Lusitania or Portugall the countrey of Almonds, if Britanica were at first Baratanaca, or the land of Tienne, and Ibernica or Ireland, were but Ibernæ, or the farthest habitation, and these names imposed and dispersed by Phœnician Colonies in their severall navigations;

navigations; the Antiquity of habitations might be more clearly advanced.

Thus though we have declared how largely the world was inhabited within the space of 1300 years, yet must it be conceived more populous than can be evinced; for a greater part of the Earth hath ever been peopled; then hath been known or described by Geographers, as will appear by the discoveries of all ages; for neither in Herodotus or Thucydides do we finde any mention of Rome, nor in Ptolomy of many parts of Europe, Asia, or Africa. And because many places we have declared of long plantation, of whose populousity notwithstanding or memorable actions we have no ancient story, if we may conjecture of these by what we finde related of others, we shall not need many words, nor assume the half of 1300 years. And this we might illustrate from the mighty acts of the Assyrians performed not long after the Flood; recorded by Justine and Diodorus, who makes relation of expeditions by Armies more numerous than have been ever since. For Ninus King of Assyria brought against the Bactrians 700000 foot, 200000 horse, 10600 Chariots; Semiramis his successor led against the Indians 1300000 foot, 500000 horse, 100000 Chariots. and as many upon Camels: And it is said, Staurobates the Indian King met her with greater forces than she brought against him; all which was performed within lesse then four hundred years after the Flood.

Now if any imagine the unity of their language did hinder their dispersion before the Flood, we confesse it some hindrance at first, but not much afterward: for though it might restrain their dispersion, it could not their populousity; which necessarily requireth transmigration and emission of Colonies, as we reade of Romans, Greeks, Phanicians in ages past, and have beheld examples thereof in our daies. We may also observe that after the Flood before the confusion of tongues, men began to disperse; for it is said, they journeyed towards the East, and the Scripture it self expresseth a necessity conceived of their dispersion, for the intent of erecting the Tower is so delivered in the text, lest we be scattered abroad upon the face of the earth.

Again, If any imagine the plantation of the earth more easie in regard of Navigation and shipping discovered since the Flood, whereby the Islands and divided parts of the earth are now inhabited; he must consider that whether there were Islands or no before the Flood, is not yet determined, and is with probability denied by very learned Authours.

Whether any
Islands before the
Flood.

Lastly, If we shall fall into apprehension that it was lesse inhabited, because it is said in the sixt of Genesis about a 120 years before the Flood, and it came to passe that when men began to multiply upon the face of the earth. Beside that this may be only meant of the race of Cain, it will not import they were not multiplied before, but that they were at that time plentifully encreased; for so is the same word used in other parts of Scripture. And so is it afterward in the 9 Chapter said that Noah began to be an husbandman, that is, he was so, or earnestly performed the Acts thereof: so it is said of our Saviour, that he began to cast them out that bought and sold in the Temple, that is, he actually cast them out, or with alacrity effected it.

Thus have I declared my private and probable conceptions in the enquiry of this truth; but the certainty hereof let the Arithmetick of the last day determine; and therefore expect no further belief then probability and reason induce. Only desire men would not swallow dubiosities for certainties, and receive as principles points mainly controvertible; for we are to adhere unto things doubtfull in a dubious and opinative way; it being reasonable for

every man to vary his opinion according to the variance of his reason, and to affirm one day what he denied another; wherein although at last we misse of truth, we die notwithstanding in harmlesse and inoffensive errors; because we adhere unto that whereunto the examen of our reasons, and honest enquiries induce us.

CHAP. VII. *See this Discourse on also
of East and West. fol. 163. 164.*

THe next shall be of East and West; that is, the proprieties and conditions ascribed unto Regions respectively unto those situations, which hath been the obvious conception of Philosophers and Geographers, magnifying the condition of India, and the Eastern Countries, above the setting and occidentall Climates; some ascribing hereto the generation of gold, precious stones and spices, others the civility and naturall endowments of men; conceiving the bodies of this situation to receive a speciall impression from the first salutes of the Sunne; and some appropriate influence from his ascendent and orientall radiations. But these proprieties affixed unto bodies, upon considerations deduced from East, West, or those observable points of the sphere, how specious and plausible soever, will not upon enquiry be justified from such foundations.

For, to speak strictly, there is no East and West in nature; nor are those absolute and invariable, but respective and mutable points, according unto different longitudes, or distant parts of habitation; whereby they suffer many and considerable variations. For first, unto some, the same part will be East or West in respect of one another; that is, unto such as inhabit the same parallel, or differently dwell from East to West. Thus as unto Spain, Italy lyeth East, unto Italy Greece, unto Greece Persia, and unto Persia China, so again unto the Countrey of China, Persia lyeth West, unto Persia Greece, unto Greece Italy, and unto Italy Spain. So that the same Countrey is sometimes East and sometimes West; and Persia though East unto Greece, yet is it West unto China.

Unto other habitations the same point will be both East and West; as unto those that are Antipodes or seated in points of the Globe diametrically opposed. So the Americans are Antipodall unto the Indians, and some part of India is both East and West unto America, according as it shall be regarded from one side or the other, to the right or to the left; and setting out from any middle point, either by East or West, the distance unto the place intended is equall, and in the same space of time in nature also performable.

To a third that have the Poles for their vertex, or dwell in the position of a parallel sphere, there will be neither East nor West, at least the greatest part of the year. For if (as the name Orientall implyeth) they shall account that part to be East whereever the Sunne ariseth, or that West where the Sun is occidentall or setteth, almost half the year they have neither the one nor the other. For half the year it is below their Horizon, and the other half it is continually above it, and circling round about them intersecteth not the Horizon, nor leaveth any part for this compute. And if (which will seem very reasonable) that part should be termed the Eastern point, where the Sunne at the Equinox, and but once in the year ariseth, yet will this

this also disturb the Cardinall accounts, nor will it with propriety admit that appellation. For that surely cannot be accounted East which hath the South on both sides; which notwithstanding this position must have; for if unto such as live under the pole, that be only North which is above them, that must be Southerly which is below them; which is all the other portion of the Globe beside that part possessed by them. And thus these points of East and West being not absolute in any, respective in some, and not at all relating unto others; we cannot hereon establish so generall considerations, nor reasonably erect such immutable assertions, upon so unstable foundations.

Now the ground that begat or promoted this conceit, was first a mistake in the apprehension of East and West, considering thereof as of the North and South, and computing by these as invariably as by the other; but herein, upon second thoughts there is a great disparity. For the North and Southern pole, are the invariable termes of that Axis whereon the heavens doe move; and are therefore incommunicable and fixed points, whereof the one is not apprehensible in the other. But with the East and West it is quite otherwise; for the revolution of the Orbes being made upon the poles of North and South, all other points about the Axis are mutable; and where-soever therein the East point be determined; by succession of parts in one revolution every point becometh East. And so if where the Sunne ariseth, that part be termed East, every habitation differing in longitude, will have this point also different, in as much as the Sunne successively ariseth unto every one.

What the Northern and Southern poles be.

The second ground, although it depend upon the former, approacheth nearer the effect; and that is the efficacie of the Sunne, set out and divided according to priority of ascent, whereby his influence is conceived more favourable unto one Countrey then another, and to felicitate India more then any after. But hereby we cannot avoid absurdities and such as inferre effects controulable by our senses: For first, by the same reason that we affirm the Indian richer then the American, the American will also be more plentifull then the Indian, and England or Spain more fruitfull then Hispaniola or golden Castile; in as much as the Sunne ariseth unto the one sooner then the other, and so accountably unto any Nation subjected unto the same parallell, or with a considerable diversity of longitude from each other.

Secondly, An unsufferable absurdity will ensue; for thereby a Country may be more fruitfull then it self: For India is more fertile then Spain, because more East, and that the Sunne ariseth first unto it; Spain likewise by the same reason more fruitfull then America, and America then India; so that Spain is lesse fruitfull then that Country, which a lesse fertile Country then it self, excelleth.

Lastly, If we conceive the Sunne hath any advantage by priority of ascent, or makes thereby one Country more happy then another, we introduce unjustifiable determinations, and impose a naturall partiality on that luminary; which being equidistant from the earth, and equally removed in the East as in the West, his power and efficacy in both places must be equall; as Boetius hath taken notice in his first *de Gemmis*, and Scaliger hath graphically declared in his Exercitations. Some have therefore forsaken this refuge of the Sunne, and to salve the effect have recurred unto the influence of the starres, making their activities Nationall, and appropriating their powers unto particular regions. So Cardan conceiveth the taile of Ursa major peculiarly respecteth Europe; whereas indeed once in 24 hours it also absolveth its course

over Asia and America. And therefore it will not be easie to apprehend those stars peculiarly glance on us, who must of necessity carry a common eye and regard unto all Countries, unto whom their revolution and verticity is also common.

Whence proceed
the different com-
modities of several
Countries.

The effects therefore or different productions in severall Countries, which we impute unto the action of the Sunne, must surely have nearer and more immediate causes then that Luminary; and these if we place in the propriety of clime, or condition of soile wherein they are produced, we shall more reasonably proceed, then they who ascribe them unto the activity of the Sunne; whose revolution being regular, it hath no power nor efficacie peculiar from its orientality, but equally dispereth his beams unto all which equally and in the same restriction receive his lustre. And being an universall and indefinite agent, the effects or productions we behold, receive not their circle from his causality, but are determined by the principles of the place or qualities of that region which admits them. And this is evident not only in gemmes, minerals, and mettals, but observable in plants and animals; whereof some are common unto many Countries, some peculiar unto one, some not communicable unto another. For the hand of God that first created the earth, hath with variety disposed the principles of all things; wisely contriving them in their proper seminaries, and where they best maintain the intention of their species; whereof if they have not a concurrence, and be not lodged in a convenient matrix, they are not excited by the efficacie of the Sunne; or failing in particular causes receive a relief or sufficient promotion from the universall. For although superiour powers cooperate with inferiour activities, and may (as some conceive) carry a stroak in the plastick and formative draught of all things, yet doe their determinations belong unto particular agents, and are defined from their proper principles. Thus the Sunne which with us is fruitfull in the generation of Frogs, Toads and Serpents, to this effect proves impotent in our neighbour Island; wherein as in all other carrying a common aspect, it concurrerh but unto predisposed effects; and only suscitates those forms, whose determinations are seminall, and proceed from the Idea of themselves.

Why Astrological
judgements upon
Nativities be taken
from the Ascen-
dent.

Now whereas there be many observations concerning East, and divers considerations of Art which seem to extoll the quality of that point, if rightly understood they doe not really promote it. That the Astrologer takes account of nativities from the Ascendent, that is, the first house of the heavens, whose beginning is toward the East, it doth not advantage the conceit. For, he establisheth not his Judgement upon the orientality thereof, but considereth therein his first ascent above the Horizon; at which time its efficacy becomes observable, and is conceived to have the signification of life, and to respect the condition of all things, which at the same time arise from their causes, and ascend to their Horizon with it. Now this ascension indeed falls out respectively in the East; but as we have delivered before, in some positions there is no Easterne point from whence to compute these ascensions. So is it in a parallel spheare: for unto them six houses are continually depressed, and six never elevated; and the Planets themselves, whose revolutions are of more speed, and influences of higher consideration, must finde in that place a very imperfect regard; for half their period they absolve above, and half beneath the Horizon. And so for six years, no man can have the happinesse to be born under Jupiter; and for fifteen together all must escape the ascendent dominion of Saturne.

That Aristotle in his Politicks, commends the situation of a City which

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is open towards the East, and admitteth the raies of the rising Sunne, thereby is implied no more particular efficacy then in the West; But that site is commended, in regard the damp and vaporous exhalations ingendered in the absence of the Sunne, are by his returning raies the sooner dispelled; and men thereby more early enjoy a clear and healthy habitation. Upon the like considerations it is, that *Marcus Varro de Rustica*, commendeth the same situation, and exposeth his farme unto the equinoxiall ascent of the Sunne. That Palladius adviseth the front of his edifice should so respect the South, that in the first angle it receive the rising raies of the winter Sunne, and decline a little from the winter setting thereof. And concordant hereunto is the instruction of Columella in his Chapter *De positione ville*; which he contriveth into Summer and Winter habitations; ordering that the Winter lodgings regard the Winter ascent of the Sunne, that is, South-east; and the rooms of repast at supper, the Equinoxiall setting thereof, that is, the West; that the Summer lodgings regard the Equinoxiall Meridian; but the rooms of canation in the Summer, he obverts unto the Winter ascent, that is, South-East; and the Balnearies or bathing places, that they may remain under the Sunne untill evening, he exposeth unto the Summer setting, that is, North-West; in all which, although the Cardinall points be introduced, yet is the consideration Solary, and only determined unto the aspect or visible reception of the Sunne.

Mahometans and Jews in these and our neighbour parts are observed to use some gestures towards the East, as at their benediction, and the killing of their meat. And though many ignorant spectators, and not a few of the actors conceive some Magick or mystery therein, yet is the Ceremony only Topically, and in a memoriall relation unto a place they honour. So the Jews doe carry a respect and cast an eye upon Jerusalem; for which practice they are not without the example of their forefathers, and the encouragement of their wise King; For so it is said that Daniel went into his house, and his windows being opened towards Jerusalem, he kneeled upon his knees three times a day, and praied. So is it expressed in the praier of Solomon, What praier or supplication soever be made by any man, which shall spread forth his hands towards this house, if thy people go out to battell, and shall pray unto the Lord towards the City which thou hast chosen, and toward the house which I have chosen to build for thy Name, then hear thou in heaven their praier, and their supplication, and maintain their cause. Now the observation hereof, unto the Jews that are dispersed Westward, and such as most converse with us, directeth their regard unto the East; But the words of Solomon are applicable unto all quarters of heaven; and by the Jews of the East and South must be regarded in a contrary position. So Daniel in Babylon looking toward Jerusalem had his face toward the West; So the Jews in their own Land looked upon it from all quarters. For the Tribe of Judah beheld it to the North; Manasses, Zabulon, and Napthali unto the South; Reuben and Gad unto the West; only the Tribe of Dan regarded it directly or to the due East. So when it is said, Luke 12. when you see a cloud rise out of the West, you say there cometh a showre, and so it is; the observation was respective unto Judea; nor is this a reasonable illation in all other Nations whatsoever; For the Sea lay West unto that Countrey, and the windes brought rain from that quarter; But this consideration cannot be transferred unto India or China, which have a vast Sea Eastward, and a vaster Continent toward the West. So likewise when it is said by Job, in the vulgar Translation, Gold cometh out of the North; is this a reasonable inducement unto us and many other Countries, from some particular mines

Dan. 6.

septentrionall

septentrionall unto his situation, to search after that metall in cold and Northern regions, which we most plentifully discover in hot and Southern habitations?

For the Mahometans, as they partake with all Religions in something, so they imitate the Jew in this. For in their observed gestures, they hold a regard unto Mecha and Medina Talnabi, two Cities in *Arabia felix*; where their Prophet was born and buried; whither they perform their pilgrimages; and from whence they expect he should return again. And therefore they direct their faces unto these parts, which unto the Mahometans of Barbary and Egypt lye East, and are in some point thereof, unto many other parts of Turkey. Wherein notwithstanding there is no Orientall respect; for with the same devotion on the other side they regard these parts toward the West; and so with variety wheresoever they are seated, conforming unto the ground of their conception.

Fourthly, Whereas in the ordering of the Camp of Israel, the East quarter is appointed unto the noblest Tribe, that is the Tribe of Judah, according to the command of God, Numb. 2. In the East-side toward the rising of the Sunne, shall the Standard of the Tribe of Judah pitch; it doth not peculiarly extoll that point. For herein the East is not to be taken strictly, but as it signifieth or implieth the formost place; for Judah had the Van, and many Countries through which they passed were seated Easterly unto them. Thus much is implied by the Originall, and expressed by Translations which strictly conform thereto: So Tremellius and Junius, *Castra habentium ab anteriore parte Orientem versus, vexillum esto castrorum Juda*; so hath R. Solomon Jarchi expounded it, the foremost or before, is the East quarter, and the West is called behinde. And upon this Interpretation may all be salved that is alleageable against it. For if the tribe of Judah were to pitch before the Tabernacle at the East, and yet to march first, as is commanded, Numb. 10. there must ensue a disorder in the Camp, nor could they conveniently observe the execution thereof: For when they set out from Mount Sinah where the Command was delivered, they made Northward unto Rithmah; from Rissah unto Eziongaber about fourteen stations they marched South: From Almon Diblathaim through the mountains of Yabarim and plains of Moab towards Jordan the face of their march was West: So that if Judah were strictly to pitch in the East of the Tabernacle, every night he encamped in the Rear: And if (as some conceive) the whole Camp could not be lesse then twelve miles long, it had been preposterous for him to have marched foremost; or set out first, who was most remote from the place to be approached.

Fiftly, That Learning, Civility and Arts, had their beginning in the East, it is not imputable either to the action of the Sunne, or its Orientality, but the first plantation of Man in those parts; which unto Europe doe carry the respect of East. For on the mountains of Ararat, that is part of the hill Taurus, between the East-Indies and Scythia, as Sr W. Raleigh accounts it, the Ark of Noah rested; from the East they travelled that built the Tower of Babel; from thence they were dispersed and successively enlarged, and Learning, good Arts and all Civility communicated. The progression whereof was very sensible; and if we consider the distance of time between the confusion of Babel, and the Civility of many parts now eminent therein, it travelled late and slowly into our quarters. For notwithstanding the learning of Bardes and Druides of elder times, he that shall peruse that work of Tacitus *de moribus Germanorum*, may easily discern how little Civility two thousand years had wrought upon that Nation; the like he may observe concerning our
selves,

Where the Ark
rested, as some
think.

selves, from the same Author in the life of Agricola, and more directly from Strabo; who to the dishonour of our Predecessours, and the disparagement of those that glory in the Antiquity of their Ancestors, affirmeth, the Britans were so simple, that though they abounded in Milk, they had not the Artifice of Cheese.

Lastly, That the Globe it self is by Cosmographers divided into East and West, accounting from the first Meridian, it doth not establish this conceit. For that division is not naturally founded, but artificially set down, and by agreement; as the aptest terms to define or commensurate the longitude of places. Thus the ancient Cosmographers doe place the division of the East and Western Hemisphere, that is the first term of longitude in the Canary or fortunate Islands; conceiving these parts the extreamest habitations Westward: But the Moderns have altered that term, and translated it unto the Azores or Islands of St Michael; and that upon a plausible conceit of the small or insensible variation of the compasse in those parts; wherein nevertheless, and though upon second invention, they proceed upon a common and no appropriate foundation; for even in that Meridian farther North or South the compasse observably varieth; and there are also other places wherein it varieth not, as Alphonso and Rodoriges *de Lago* will have it about *Capo de las Agullas* in Africa; as Maurolycus affirmeth in the shore of Peloponesus in Europe; and as Gilbertus averreth, in the midst of great regions, in most parts of the earth.

CHAP. VIII.

Of the River Nilus.

Hereof uncontrollably and under generall consent many opinions are passant; which notwithstanding upon due examination, doe admit of doubt or restriction. It is generally esteemed, and by most unto our daies received, that the River of Nilus hath seven ostiaries; that is, by seven Channels disburdeneth it self into the Sea. Wherein notwithstanding, beside that we finde no concurrent determination of ages past, and a positive and undeniable refute of these present; the affirmative is mutable, and must not be received without all limitation.

For some, from whom we receive the greatest illustrations of Antiquity, have made no mention hereof: So Homer hath given no number of its Channels, nor so much as the name thereof in use with all Historians. Eratosthenes in his description of Ægypt hath likewise passed them over. Aristotle is so indistinct in their names and numbers, that in the first of Meteors, he plainly affirmeth the Region of Ægypt (which we esteem the ancientest Nation in the world) was a meer gained ground; and that, by the settling of mud and limous matter brought down by the River Nilus, that which was at first a continued Sea, was raised at last into a firm and habitable Countrey. The like opinion he held of Mæotis Palus, that by the floods of Tanais and earth brought down thereby, it grew observably shallower in his daies, and would in proceffe of time become a firm land. And though his conjecture be not as yet fulfilled, yet is the like observable in the River Gihon, a branch of Euphrates and River of Paradise; which having in former Ages discharged it self into the Persian Sea, doth at present fall short, being lost in the lakes of Chaldea, and hath left between the Sea, a large and considerable part of dry land.

N n

Others

105.

How Ægypt first became firm land.

Others exprelly treating hereof have diversly delivered themselves; Herodotus in his Euterpe makes mention of seven; but carelessly of two thereof; that is, *Bolbitinum*, and *Bucolicum*; for these, saith he, were not the naturall currents, but made by Art for some occasionall convenience. Strabo in his Geography naming but two, *Pelusiicum* and *Canopicum*, plainly affirmeth there were many more then seven; *Inter hæc alia quinque, &c.* There are (saith he) many remarkable towns within the currents of Nile, especially such which have given the names unto the ostiaries thereof; not unto all, for they are eleven, and four besides, but unto seven and most considerable; that is, *Canopicum*, *Bulbitinum*, *Selleneticum*, *Sebenneticum*, *Pharniticum*, *Mendesum*, *Taniticum* and *Pelusum*; wherein to make up the number, one of the artificicall chanel of Herodotus is accounted. Ptolomy an Egyptian, and born at the Pelusian mouth of Nile, in his Geography maketh nine; and in the third Map of Africa, hath unto their mouths prefixed their severall names; *Heracleoticum*, *Bolbitinum*, *Sebenneticum*, *Pineptum*, *Diolcos*, *Patmeticum*, *Mendesum*, *Taniticum*, *Pelusiicum*; wherein notwithstanding there are no lesse then three different names from those delivered by Pliny. All which considered, we may easily discern that Authors accord not either in name or number; and must needs confirm the Judgement of Maginus, *de Ostiorum Nili numero & nominibus, valde antiqui scriptores discordant.*

Modern Geographers and travellers do much abate of this number; for as Maginus and others observe, there are now but three or four mouths thereof; as Gulielmus Tyrius long ago, and Bellonius since, both ocular enquirers, with others have attested. For below Cairo, the River divides it self into four branches, whereof two make the chief and navigable streams, the one running to Pelusium of the Ancients, and now *Damiata*; the other unto *Canopium* and now *Roscetta*; the other two, saith Mr Sandys, doe runne between these; but poor in water. Of those seven mentioned by Herodotus, and those nine by Ptolomy, these are all I could either see or hear of. Which much confirmeth the testimony of the Bishop of Tyre, a diligent and ocular enquirer; who in his holy war doth thus deliver himself. We wonder much at the Ancients, who assigned seven mouths unto Nilus: which we can no otherwise save, then that by proceffe of time, the face of places is altered, and the river hath lost its channels; or that our forefathers did never obtain a true account thereof.

And therefore when it is said in holy Scripture, The Lord shall utterly destroy the tongue of the Egyptian Sea, and with his mighty winde he shall shake his hand over the river, and shall smite it in the seven streams, and make men go over dry-shod. If this expression concerneth the river Nilus, it must only respect the seven principall streams; but the place is very obscure, and whether thereby be not meant the river Euphrates, is not without good controversie, as is collectible from the subsequent words; And there shall be an high way for the remnant of his people, that shall be left from Assyria, from the bare name River, emphatically signifying Euphrates, and thereby the division of the Assyrian Empire into many fractions, which might facilitate their return: as Grotius hath observed; and is more plainly made out, if the Apocrypha of Esdras, and that of the Apocalyps have any relation hereto.

Lastly, Whatever was or is their number, the contrivers of Cards and Maps, afford us no assurance or constant description therein. For whereas Ptolomy hath set forth nine, Hondius in his Map of Africa, makes but eight, and in that of Europe ten. Ortelius in his *Theatrum Botanicum*, in the Map of the Turkish Empire, setteth down eight, in that of Egypt eleven; and Ma-

ginus

Sand. Relation.

Isa. 11. 15, 16.

Gr. Not. in
Isaiam.
Esdr. 2. 13, 43,
47.
Apoc. 16. 12.

ginus in his Map of that Countrey hath observed the same number. And if we enquire farther, we shall finde the same diversity and discord in divers others.

And thus may we perceive that this account was differently related by the Ancients, that it is undeniably rejected by the Moderns, and must be warily received by any. For if we receive them all into account, they were more then seven, if only the naturall sluces, they were fewer; and however we receive them, there is no agreeable and constant description thereof. And therefore how reasonable it is to draw continuall and durable deductions from alterable and uncertain foundations, let them consider who make the gates of Thebes, and the mouths of this River a constant and continued periphrasis for this number; and in their Poeticall expressions do give the River that Epithite unto this day.

The same River is also accounted the greatest of the earth, called therefore *Fluviorum pater*, and *totius Orbis maximus*, by Ortelius; with the verity hereof, I confesse I could be well contented, nor do I wish the ruine of this assertion, neverthelesse if this be true, many Maps must be corrected, or the relations of divers good Authours renounced.

For first, In the deliniations of many Maps of Africa, the River Niger exceedeth it about ten degrees in length, that is, no lesse then six hundred miles. For, arising beyond the Equator it maketh Northward almost 15 degrees, and deflecting after Westward, without meanders, continueth a strait course about 40 degrees; and with many great currents disburdeneth it self into the Occidentall Ocean. Again, if we credit the descriptions of good Authours, other Rivers excell it in length or breadth, or both. Arrianus in his history of Alexander, assigneth the first place unto the River Ganges; which truly according unto later relations, if not in length, yet in breadth and depth may be granted to excell it: For the magnitude of Nilus consisteth in the dimension of Longitude, and is inconsiderable in the other; what stream it maintaineth beyond Syene or Asna, and so forward unto its originall, relations are very imperfect; but below these places and farther removed from the head, the current is but narrow; and we reade in the history of the Turks, the Tartar horsemen of Selimus, swam over the Nile from Cairo, to meet the forces of Tonombeius. Baptista Scortia expressly treating hereof, preferreth the River of Plate in America; for that as Maffeus hath delivered, falleth into the Ocean in the latitude of fourty Leagues; and with that source and plenty that men at Sea do taste fresh water, before they approach so near as to discover the land. So is it exceeded by that which by Cardan is termed the greatest in the world, that is the River Oregliana in the same continent; which as Maginus delivereth, hath been navigated 6000 miles; and opens in a Chanell of ninety leagues broad; so that, as Acofta an ocular witnesse recordeth, they that sail in the middle, can make no land of either side.

Now the ground of this assertion was surely the magnifying esteem of the Ancients, arising from the indiscovery of its head. For as things unknown seem greater then they are, and are usually received with amplifications above their nature; So might it also be with this River, whose head being unknown and drawn to a proverbiall obscurity, the opinion thereof became without bounds; and men must needs conceit a large extent of that to which the discovery of no man had set a period. And this an usuall way to give the superlative unto things of eminency in any kinde; and when a thing is very great, presently to define it to be the greatest of all. Whereas indeed Superlatives are difficult; whereof there being but one in every kinde, their

The greatest Ci-
ties of the world,

The highest Hills.

The cause of the
overflowing of
Nilus.

determinations are dangerous, and must not be made without great circum-
spection. So the City of Rome is magnified by the Latines to be the greatest
of the earth; but time and Geography inform us, that Cairo is bigger, and
Quinsay in China farre exceedeth both. So is Olympus extolled by the Greeks,
as an hill attaining unto heaven; but the enlarged Geography of after times,
makes slight account hereof, when they discourse of Andes in Peru, or Tene-
riffa in the Canaries. So have all ages conceived, and most are still ready to
swear, the Wren is the least of birds; yet the discoveries of America, and
even of our own Plantations have shewed us one farre lesse; that is, the Hum-
bird, not much exceeding a Beetle. And truly, for the least and greatest, the
highest and the lowest of every kinde, as it is very difficult to define them in
visible things; so is it to understand in things invisable. Thus is it no easie les-
son to comprehend the first matter, and the affections of that which is next
neighbour unto nothing; and impossible truly to comprehend God, who in-
deed is all things. And so things as they arise unto perfection, and approach
unto God, or descend to imperfection, and draw neerer unto nothing, fall both
imperfectly into our apprehensions; the one being too weak for our concep-
tion, our conception too weak for the other.

Thirdly, Divers conceptions there are concerning its increment or inunda-
tion. The first unwarily opinions, that this encrease or annuall overflowing is
proper unto Nile, and not agreeable unto any other River; which notwithstanding
is common unto many currents of Africa. For about the same time
the River Niger, and Zaire do overflow; and so do the Rivers beyond the
mountains of the Moon, as Suama, and Spirito Santo. And not only these in
Africa, but some also in Europe and Asia; for so it is reported of Menan in
India, and so doth Botero report of Duina in Livonia; and the same is also ob-
servable in the River Jordan in Judea; for so is it delivered Joshua 3. that
Jordan overfloweth all his banks in the time of harvest.

The effect indeed is wonderfull in all, and the causes surely best resolvable
from observations made in the Countries themselves, the parts through which
they passe, or whence they take their originall. That of Nilus hath been at-
tempted by many, and by some to that despair of resolution, that they have
only referred it unto the providence of God, and the secret manuduction of
all things unto their ends. But divers have attained the truth, and the cause
alleged by Diodorus, Seneca, Strabo and others, is allowable; that the in-
undation of Nilus in Ægypt proceeded from the rains in Æthiopia, and the
mighty source of waters falling towards the fountains thereof. For this in-
undation unto the Ægyptians happeneth when it is winter unto the Æthiopi-
ans; which habitations, although they have no cold winter (the Sunne be-
ing no farther removed from them in Cancer, then unto us in Taurus) yet
is the fervour of the ayre so well remitted, as it admits a sufficient generation
of vapours, and plenty of showres ensuing thereupon. This theory of the
Ancients is since confirmed by experience of the Moderns; by Franciscus Al-
varez who lived long in those parts, and left a description of Æthiopia; affirm-
ing that from the middle of June unto September, there fell in his time conti-
nuall rains. As also Antonius Ferdinandus, who in an Epistle written from
thence, and noted by Codignus, affirmeth, that during the winter, in those
Countries there passed no day without rain.

Now this is also usuall to translate a remarkable quality into a propriety,
and where we admire an effect in one, to opinion there is not the like in any
other. With these conceits do common apprehensions entertain the antidotall
and wondrous condition of Ireland; conceiving only in that Land an immu-
nity from venomous creatures; but unto him that shall further enquire, the
same

same will be affirmed of Creta, memorable in ancient stories, even unto fabulous causes, and benediction from the birth of Jupiter: The same is also found in Ebusus or Evisa, an Island near Majorca upon the coast of Spain. With these opinions do the eyes of neighbour spectators behold Ætna, the flaming mountain in Sicilia; but Navigators tell us there is a burning mountain in Island; a more remarkable one in Teneriffa of the Canaries; and many volcanos or fiery hills elsewhere. Thus Crocodiles were thought to be peculiar unto Nile, and the opinion so possessed Alexander, that when he had discovered some in Ganges, he fell upon conceit he had found the head of Nilus; but later discoveries affirm they are not only in Asia and Africa, but very frequent in some Rivers of America.

Another opinion confineth its inundation, and positively affirmeth, it constantly encreaseth the seventeenth day of June; wherein perhaps a larger form of speech were safer, then that which punctually prefixeth a constant day thereto. For this expression is different from that of the Ancients, as Herodotus, Diodorus, Seneca, &c. delivering only that it happeneth about the entrance of the Sunne into Cancer; wherein they warily deliver themselves, and reserve a reasonable latitude. So when Hippocrates saith, *Sub Cane & ante Canem difficiles sunt purgationes*; there is a latitude of daies comprised therein; for under the Dog-Starre he containeth not only the day of its ascent, but many following, and some ten daies preceding. So Aristotle delivers the affections of animals, with the wary termes of *Circa, & magna ex parte*: and when Theodorus translateth that part of his, *Coeunt Thunni & Scombrimense Februario post Idus, pariunt Junio ante Nonas*: Scaliger for *ante Nonas*, renders it *Junij initio*; because that exposition affordeth the latitude of divers daies: For affirming it happeneth before the Nones; he alloweth but one day, that is the Calends; for in the Roman account, the second day is the fourth of the Nones of June.

Again, Were the day definitive it had prevented the delusion of the devil, nor could he have gained applause by its prediction; who notwithstanding (as Athanasius in the life of Anthony relateth) to magnifie his knowledge in things to come, when he perceived the rains to fall in Æthiopia, would preface unto the Egyptians the day of its inundation. And this would also make uselesse that naturall experiment observed in earth or sand about the River; by the weight whereof (as good Authors report) they have unto this day a knowledge of its encrease.

Lastly, It is not reasonable from variable and unstable causes, to derive a fixed and constant effect, and such are the causes of this inundation; which cannot indeed be regular, and therefore their effects not prognosticable like Eclipses, for depending upon the clouds and descent of showres in Æthiopia, which have their generation from vaporous exhalations, they must submit their existence unto contingencies, and endure anticipation and recession from the moveable condition of their causes. And therefore some years there hath been no encrease at all, as Seneca and divers relate of the eleventh year of Cleopatra; nor nine years together, as is testified by Calisthenes. Some years it hath also retarded, and came farre later then usually it was expected, as according to Sozomen and Nicephorus it happened in the daies of Theodosius; whereat the people were ready to mutiny, because they might not sacrifice unto the River, according to the custome of their predecessors.

Now this is also an usuall way of mistake, and many are deceived who too strictly construe the temporall considerations of things. Thus books will tell us, and we are made to beleieve that the fourteenth year males are semlnificall and pubescent; but he that shall enquire into the generality, will rather adhere

147.

unto the cautelous assertion of Aristotle, that is, *his septem annis exactis*, and then but *magna ex parte*. That Whelps are blinde nine daies, and then begin to see, is generally beleevd; but as we have *elsewhere* declared, it is exceeding rare, nor doe their eye-lids usually open untill the twelfth, and sometimes not before the fourteenth day. And to speak strictly an hazardable determination it is unto fluctuating and indifferent effects, to affix a positive type or period. For in effects of farre more regular causalities difficulties doe often arise; and even in time it self which measureth all things, we use allowance in its commensuration. Thus while we conceive we have the account of a year in 365 daies, exact enquirers and computists will tell us, that we escape 6 hours, that is a quarter of a day. And so in a day which every one accounts 24 houres, or one revolution of the Sunne; in strict account we must allow the addition of such a part as the Sunne doth make in his proper motion, from West to East, whereby in one day he describeth not a perfect circle.

Fourthly, It is affirmed by many, and received by most, that it never raineth in Ægypt, the River supplying that defect, and bountifully requiting it in its inundation: but this must also be received in a qualified sense, that is, that it rains but seldome at any time in the Summer, and very rarely in the Winter. But that great showres doe sometimes fall upon that Region, beside the assertion of many Writers, we can confirm from honourable and ocular testimony, and that not many years past, it rained in Grand Cairo divers daies together.

That Ægypt hath
rain.
Sir William
Paston.

The same is also attested concerning other parts of Ægypt, by Prosper Alpinus, who lived long in that Countrey, and hath left an accurate treaty of the medicall practice thereof. *Cayri raro decidunt pluvie, Alexandria, Pelusiq; & in omnibus locis mari adjacentibus, pluit largissime & sepe*; that is, it raineth seldome at Cairo, but at Alexandria, Damietta, and places near the Sea, it raineth plentifully, and often. Whereto we might adde the later testimony of Learned Mr Greaves, in his accurate description of the Pyramids.

Beside, Men hereby forget the relation of holy Scripture, Exod. 9. Behold I will cause it to rain a very great haile, such as hath not been in Ægypt since the foundation thereof, even untill now. Wherein God threatening such a rain as had not happened, it must be presumed they had been acquainted with some before, and were not ignorant of the substance, the menace being made in the circumstance. The same concerning haile is inferrible from Prosper Alpinus. *Rarissime nix, grando*, it seldome snoweth or haileth. Whereby we must concede that snow and haile doe sometimes fall, because they happen seldome.

Now this mistake ariseth from a misapplication of the bounds or limits of time, and an undue transition from one unto another; which to avoid we must observe the punctuall differences of time, and so distinguish thereof, as not to confound or lose the one in the other. For things may come to passe, *Semper, Plerumq; Sæpe aut Nunquam, Aliquando, Raro*; that is, Alwaies or Never, For the most part or Sometimes, Oft times or Seldome. Now the deception is usuall which is made by the misapplication of these; men presently concluding that to happen often, which happeneth but sometimes; that never, which happeneth but seldome; and that alway which happeneth for the most part. So is it said, the Sunne shines every day in Rhodes, because for the most part it faileth not: So we say and beleve that a Camelion never eateth, but liveth only upon ayre, whereas indeed it is seen to eat very seldome; but many there are who have beheld it to feed on Flyes. And so it is said, that children born in the eight moneth live not, that is, for the most part,

for this at large &c. &c.

part, but not to be concluded alwaies; nor it seems in former ages in all places; for it is otherwise recorded by Aristotle concerning the births of Egypt.

Lastly, It is commonly conceived that divers Princes have attempted to cut the Isthmus or tract of land which parteth the Arabian and Mediterranean Sea; but wherein upon enquiry I finde some difficulty concerning the place attempted; many with good authority affirming, that the intent was not immediatly to unite these Seas, but to make a navigable channell between the Red Sea and the Nile, the marks whereof are extant to this day; it was first attempted by Serfostris, after by Darius, and in a fear to drown the Countrey deserted by them both; but was long after re-attempted, and in some manner effected by Philadelphus. And so the grand Signior who is Lord of the Countrey, conveyeth his Gallies into the Red Sea by the Nile; for he bringeth them down to Grand Cairo where they are taken in pieces, carried upon Camels backs, and rejoyned together at Sues, his port and Navall station for that Sea; whereby in effect he acts the design of Cleopatra, who after the battel of Actium, in a different way would have conveyed her Gallies into the Red Sea.

*Lingua maris
Egyptij.
Ita. 11. 150*

And therefore that proverb to cut an Isthmus, that is, to take great pains, and effect nothing, alludeth not unto this attempt; but is by Erasmus applied unto severall other, as that undertaking of Cnidians to cut their Isthmus, but especially that of Corinth so unsuccessfully attempted by many Emperours. The Cnidians were deterred by the peremptory dissuasion of Apollo, plainly commanding them to desist; for if God had thought it fit, he would have made that Countrey an Island at first. But this perhaps will not be thought a reasonable discouragement unto the activity of those spirits which endeavour to advantage nature by Art, and upon good grounds to promote any part of the universe; nor will the ill successe of some be made a sufficient determent unto others; who know that many learned men affirm, that Islands were not from the beginning; that many have been made since by Art, that some Isthmes have been eat through by the Sea, and others cut by the spade: And if policy would permit, that of Panama in America were most worthy the attempt; it being but few miles over, and would open a shorter cut unto the East Indies and China.

*Isthmum per-
fodere.*

CHAP. IX.

Of the Red Sea.

Contrary apprehensions are made of the Erythraean or Red Sea; most apprehending a materiall rednesse therein, from whence they derive its common denomination; and some so lightly conceiving hereof, as if it had no rednesse at all, are faine to recurre unto other originals of its appellation. Wherein to deliver a distinct account, we first observe that without consideration of colour it is named the Arabian Gulph: The Hebrews who had best reason to remember it, do call it Zuph, or the weedy Sea, because it was full of sedge, or they found it so in their passage; the Mahometans who are now Lords thereof do know it by no other name then the Gulph of Mecha a City of Arabia.

*What the Red
Sea is.*

The stream of Antiquity deriveth its name from King Erythrus; so slightly conceiving of the nominall deduction from Rednesse, that they plainly deny

deny there is any such accident in it. The words of Curtius are plain beyond evasion, *Ab Erythro rege inditum est nomen, propter quod ignari rubere aquas credunt*: Of no more obscurity are the words of Philostratus, and of later times Sabellicus; *Stultè persuasum est vulgo rubras alicubi esse maris aquas, quin ab Erythro rege nomen pelago inditum*. Of this opinion was Andraas Corfalius, Pliny, Solinus, Dio Cassius, who although they denied not all rednesse, yet did they rely upon the originall from King Erythrus.

Whence the Phœnicians are.

Others have fallen upon the like, or perhaps the same conceit under another appellation; deducing its name not from King Erythrus but Esau or Edom, whose habitation was upon the coasts thereof. Now Edom is as much as Erythrus, and the Red Sea no more then the Idumean; from whence the posterity of Edom removing towards the Mediterranean coast; according to their former nomination by the Greeks were called Phœnicians or red men; and from a plantation and colony of theirs an Island near Spain was by the Greek describers termed Erythra, as is declared by Strabo and Solinus.

1 Cor. 10. 2.

Aug. in Iohan. neta.

Very many omitting the nominall derivation do rest in the grosse and literall conception thereof, apprehending a reall rednesse and constant colour of parts. Of which opinion are also they which hold the Sea receiveth a red and minious tincture from springs, wells, and currents that fall into it: and of the same belief are probably many Christians who conceiving the passage of the Israelites through this Sea to have been the type of Baptisme, according to that of the Apostle, All were baptized unto Moses in the cloud; and in the Sea; for the better resemblance of the blood of Christ, they willingly received it in the apprehension of rednesse, and a colour agreeable unto its mystery; according to that of Austin, *Significat mare illud rubrum Baptismum Christi; unde nobis Baptismus Christi nisi sanguine Christi consecratus?*

But divers Moderns not considering these conceptions; and appealing unto the Testimony of sense, have at last determined the point; concluding a rednesse herein, but not in the sense received. Sir Walter Raleigh from his own and Portugall observations, doth place the rednesse of the Sea, in the reflection from red Islands, and the rednesse of the earth at the bottom; wherein Corall grows very plentifully, and from whence in great abundance it is transported into Europe. The observations of Alberquerque, and Stephanus de Gama (as from Johannes de Barros, Fernandus de Cordova relateth) derive this rednesse from the colour of the sand and argillous earth at the bottome; for being a shallow Sea, while it rowleth too and fro, there appeareth a rednesse upon the water; which is most discernable in sunny and windy weathers. But that this is no more then a seeming rednesse, he confirmeth by an experiment: for in the reddest part taking up a vessell of water, it differed not from the complexion of other Seas. Nor is this colour discoverable in every place of that Sea; for as he also observeth, in some places it is very green, in others white and yellow, according to the colour of the earth or sand at the bottome. And so may Philostratus be made out, when he saith, this Sea is blue; or Bellonius denying this rednesse, because he beheld not that colour about Sues; or when Corfalius at the mouth thereof could not discover the same.

Now although we have enquired the ground of rednesse in this Sea, yet are we not fully satisfied; for what is forgot by many, and known by few, there is another Red Sea whose name we pretend not to make out from these principles; that is, the Persian Gulph or Bay, which divideth the Arabian and

Persian

Persian shoare, as Pliny hath described it, *Mare rubrum in duos dividitur sinus, is qui ab Oriente est Persicus appellatur*; or as Solinus expresth it, *Qui ab Oriente est Persicus appellatur, ex adverso unde Arabia est, Arabicus*; whereto assenteth Suidas, Ortelius, and many more. And therefore there is no absurdity in Strabo when he delivereth that Tigris and Euphrates do fall into the Red Sea, and Fernandius *de Cordova*, justly defendeth his Countreyman Seneca in that exprestion;

*Et qui renatum prorsus excipiens diem
Tepidum Rubenti Tigrin immiscet freto.*

Nor hath only the Persian Sea received the same name with the Arabian, but, what is strange, and much confounds the distinction, the name thereof is also derived from King Erythrus; who was conceived to be buried in an Island of this Sea, as Dionysius Afer, Curtius, and Suidas do deliver. Which were of no lesse probability then the other, if (as with the same Authors Strabo affirmeth) he was buried near Caramania bordering upon the Persian Gulph. And if his tomb was seen by Nearchus, it was not so likely to be in the Arabian Gulph; for we read that from the River Indus he came unto Alexander at Babylon, some few daies before his death. Now Babylon was seated upon the River Euphrates, which runnes into the Persian Gulph. And therefore however the Latine expresth it in Strabo, that Nearchus suffered much in the Arabian Sinus, yet is the originall *κόλπος πέρσιος*, that is, the Gulph of Persia.

That therefore the Red Sea or Arabian Gulph received its name from personall derivation, though probable is but uncertain; that both the Seas of one name should have one common denominator, lesse probable; that there is a grosse and materiall rednesse in either, not to be affirmed; that there is an emphaticall or appearing rednesse in one, not well to be denied. And this is sufficient to make good the Allegory of the Christians; and in this distinction may we justifie the name of the Black Sea, given unto Pontus Euxinus; the name of Xanthus, or the Yellow river of Phrygia; and the name of Mar Vermeio, or the Red Sea in America.

CHAP. X.

Of the Blacknesse of Negroes.

IT is evident not only in the generall frame of Nature, that things most manifest unto sense, have proved obscure unto the understanding: But even in proper and appropriate objects, wherein we affirm the sense cannot erre, the faculties of reason most often fail us. Thus of colours in generall, under whose glosse and vernish all things are seen, no man hath yet beheld the true nature; or positively set down their incontroulable causes. Which while some ascribe unto the mixture of the Elements, others to the graduality of opacity and light; they have left our endeavours to grope them out by twilight, and by darknesse almost to discover that whose existence is evidenced by light. The Chymists have attempted laudably, reducing their causes unto Sal, Sulphur, and Mercury; and had they made it out so well in this, as in the objects of smell and taste, their endeavours had been more acceptable: For whereas they refer Sapor unto Salt, and Odor unto Sulphur, they vary much concerning colour; some reducing it unto Mercury, some to Sulphur, others unto Salt. Wherein indeed the last conceit doth not oppresse the former;

O o

and

The principles of
Colour according
to the Chymists.

and though Sulphur seem to carry the master stroak, yet Salt may have a strong cooperation. For beside the fixed and terrestrious Salt, there is in natural bodies a *Sal niter* referring unto Sulphur; there is also a volatile or Armoniac Salt, retaining unto Mercury; by which Salts the colours of bodies are sensibly qualified, and receive degrees of lustre or obscurity, superficiality or profundity, fixation or volatility.

Their generall or first natures being thus obscure, there will be greater difficulties in their particular discoveries; for being farther removed from their simplicities they fall into more complexed considerations, and so require a subtiler act of reason to distinguish and call forth their natures. Thus although a man understood the generall nature of colours, yet were it no easie probleme to resolve, Why Grasse is green? Why Garlick, Molyes, and Porrets have white roots, deep green leaves, and black seeds? Why severall docks, and sorts of Rhubarb with yellow roots, send forth purple flowers? Why also from Lactary or milky plants which have a white and lacteous juice dispersed through every part, there arise flowers blue and yellow? Moreover beside the specificall and first digressions ordained from the Creation, which might be urged to salve the variety in every species; Why shall the Marvaile of Peru produce its flowers of different colours, and that not once, or constantly, but every day and variously? Why Tulips of one colour produce some of another, and running through almost all, should still escape a blue? And lastly, Why some men, yea and they a mighty and considerable part of mankind, should first acquire and still retain the glosse and tincture of blacknesse? which whoever strictly enquires, shall finde no lesse of darknesse in the cause, then blacknesse in the effect it self; there arising unto examination no such satisfactory and unquarrellable reasons, as may confirm the causes generally received; which are but two in number: The heat and scorch of the Sunne; or the curse of God on Cham and his posterity.

The first was generally received by the Ancients, who in obscurities had no higher recourse then unto Nature, as may appear by a Discourse concerning this point in Strabo. By Aristotle it seems to be implied, in those Problems which enquire why the Sunne makes men black, and not the fire? why it whitens wax, yet blacks the skin? By the word *Æthiops* it self, applied to the memorablest Nations of Negroes, that is of a burnt and torrid countenance. The fancy of the fable infers also the Antiquity of the opinion; which deriveth the complexion from the deviation of the Sunne, and the conflagration of all things under Phaeton. But this opinion though generally embraced, was I perceive rejected by Aristobulus a very ancient Geographer; as is discovered by Strabo. It hath been doubted by severall modern Writers, particularly by Ortelius; but amply and satisfactorily discussed as we know by no man. We shall therefore endeavour a full delivery hereof, declaring the grounds of doubt, and reasons of deniall; which rightly understood, may if not overthrow, yet shrewdly shake the security of this assertion.

And first, Many which countenance the opinion in this reason, do tacitly and upon consequence overthrow it in another. For whilst they make the River Senaga to divide and bound the Moors, so that on the South-side they are black, on the other only tawny; they imply a secret causality herein from the ayre, place or River; and seem not to derive it from the Sun. The effects of whose activity are not precipitously abrupted, but gradually proceed to their cessations.

Secondly, If we affirm that this effect proceeded, or as we will not be backward to concede, it may be advanced and fomented from the fervor of the Sunne; yet doe we not hereby discover a principle sufficient to decide the question

question concerning other animals; nor doth he that affirmeth the heat makes man black, afford a reason why other animals in the same habitations maintain a constant and agreeable hue unto those in other parts, as Lions, Elephants, Camels, Swans, Tigers, Estriges. Which though in *Æthiopia*, in the diadvantage of two Summers, and perpendicular rayes of the Sunne, doe yet make good the complexion of their species, and hold a colourable correspondence unto those in milder regions. Now did this complexion proceed from heat in man, the same would be communicated unto other animals which equally participate the Influence of the common Agent. For thus it is in the effects of cold, in Regions farre removed from the Sunne; for therein men are not only of fair complexions, gray eyed, and of light hair; but many creatures exposed to the ayre, defect in extremity from their naturall colours; from brown, russet and black, receiving the complexion of Winter, and turning perfect white. Thus *Olaus Magnus* relates, that after the Autumnall *Æquinox*, Foxes begin to grow white; thus *Michovius* reporteth, and we want not ocular confirmation, that Hares and Partridges turn white in the Winter; and thus a white Crow, a Proverbiall rarity with us, is none unto them; but that inseparable accident of *Porphyrie* is separated in many hundreds.

Thirdly, If the fervor of the Sunne, or intemperate heat of clime did solely occasion this complexion, surely a migration or change thereof might cause a sensible, if not a totall mutation; which notwithstanding experience will not admit. For Negroes transplanted although into cold and flegmatick habitations, continue their hue both in themselves, and also their generations; except they mix with different complexions; whereby notwithstanding there only succeeds a remission of their tinctures; there remaining unto many descents a full shadow of their originals; and if they preserve their copulations entire they still maintain their complexions; as is very remarkable in the dominions of the Grand Signior, and most observable in the Moores in *Brasilia*, which transplanted about an hundred years past, continue the tinctures of their fathers unto this day. And so likewise fair or white people translated into hotter Countries receive not impressions amounting to this complexion, as hath been observed in many Europeans who have lived in the land of Negroes: and as *Edvardus Lopes* testifieth of the Spanish plantations, that they retained their native complexions unto his daies.

Fourthly, If the fervor of the Sunne were the sole cause hereof in *Æthiopia* or any land of Negroes; it were also reasonable that inhabitants of the same latitude, subjected unto the same vicinity of the Sunne, the same diurnall arch, and direction of its rayes, should also partake of the same hue and complexion; which notwithstanding they doe not. For the Inhabitants of the same latitude in Asia are of a different complexion, as are the Inhabitants of *Cambogia* and *Java*, insomuch that some conceive the Negroe is properly a native of Africa, and that those places in Asia inhabited now by Moores, are but the intrusions of Negroes ariving first from Africa, as we generally conceive of *Madagascar*, and the adjoining Islands, who retain the same complexion unto this day. But this defect is more remarkable in America; which although subjected unto both the Tropicks, yet are not the Inhabitants black between, or neer, or under either; neither to the Southward in *Brasilia*, *Chili*, or *Peru*; nor yet to the Northward in *Hispaniola*, *Castilia*, *del Oro*, or *Nicaragua*. And although in many parts thereof there be at present swarmes of Negroes serving under the Spaniard, yet were they all transported from Africa, since the discovery of Columbus; and are not indigenous or proper natives of America.

Fifthly, We cannot conclude this complexion in Nations from the vicinity or habitude they hold unto the Sunne; for even in Africa they be Negroes under the Southern Tropick, but are not all of this hue either under or neer the Northern. So the people of Gualata, Agades, Garamantes, and of Goaga, all within the Northern Tropicks are not Negroes; but on the other side about Capo Negro, Cefala, and Madagascar, they are of a Jetty black.

Now if to salve this Anomaly we say the heat of the Sunne is more powerfull in the Southern Tropick, because in the sign of Capricorn falls out the Perigeum or lowest place of the Sunne in his Excentrick, whereby he becomes nearer unto them then unto the other in Cancer, we shall not absolve the doubt. And if any insist upon such niceties, and will presume a different effect of the Sunne, from such a difference of place or vicinity; we shall balance the same with the concernment of its motion, and time of revolution; and say he is more powerfull in the Northern Hemisphere, and in the Apogee; for therein his motion is slower, and so his heat respectively unto those habitations, as of duration so also of more effect. For, though he absolve his revolution in 365 daies, odd hours and minutes, yet by reason of Excentricity, his motion is unequall, and his course farre longer in the Northern semicircle, then in the Southern; for the latter he passeth in a 178 daies but the other takes him a 187, that is, eleven daies more. So is his presence more continued unto the Northern inhabitants; and the longest day in Cancer is longer unto us, then that in Capricorn unto the Southern habitator. Beside, hereby we only inferre an inequality of heat in different Tropicks, but not an equality of effects in other parts subjected to the same. For, in the same degree; and as near the earth he makes his revolution unto the American, whose Inhabitants notwithstanding partake not of the same effect. And if herein we seek a relief from the Dog-Starre, we shall introduce an effect proper unto a few, from a cause common unto many; for upon the same grounds that Starre should have as forcible a power upon America and Asia; and although it be not verticall unto any part of Asia, but only passeth by Beach, *in terra incognita*; yet is it so unto America, and vertically passeth over the habitations of Peru and Brasilia.

Sixthly, and which is very considerable, there are Negroes in Africa beyond the Southern Tropick, and some so far removed from it, as Geographically the clime is not intemperate, that is, near the Cape of good Hope, in 36 of the Southern Latitude. Whereas in the same elevation Northward, the Inhabitants of America are fair; and they of Europe in Candy, Sicily, and some parts of Spain, deserve not properly so low a name as Tawny.

Lastly, Whereas the Africans are conceived to be more peculiarly scorched and torried from the Sunne, by addition of driness from the soyl, from want and defect of water; it will not excuse the doubt. For the parts which the Negroes possesse, are not so void of Rivers and moisture, as is presumed; for on the other side the Mountains of the Moon, in that great tract called Zanzibar, there are the mighty Rivers of Suama, and Spirito Santo; on this side, the great River Zaire, the mighty Nile and Niger; which do not only moisten, and temperate the air by their exhalations, but refresh and humectate the earth by their annuall inundations. Beside, in that part of Africa, which with all disadvantage is most dry, that is, in situation between the Tropicks, defect of Rivers and inundations, as also abundance of sands, the people are not esteemed Negroes; and that is Lybia, which with the Greeks carries the name of all Africa. A region so desert, dry and sandy, that travellers

The driness of
Lybia.

vellers (as Leo reports) are fain to carry water on their Camels; whereof they finde not a drop sometime in 6 or 7 daies. Yet is this countrey accounted by Geographers no part of *terra Nigritarum*, and Ptolomy placeth herein the *Leuco Ethiopes* or pale and Tawny Moors.

Now the ground of this opinion might be the visible quality of Blacknesse observably produced by heat, fire and smoak; but especially with the Ancients the violent esteem they held of the heat of the Sunne, in the hot or torrid Zone; conceiving that part uninhabitable, and therefore that people in the vicinities or frontiers thereof, could not escape without this change of their complexions. But how farre they were mistaken in this apprehension, modern Geography hath discovered; And as we have declared, there are many within this Zone whose complexions descend not so low as unto blacknesse. And if we should strictly insist hereon, the possibility might fall into question; that is, whether the heat of the Sunne, whose fervour may swart a living part, and even black a dead or dissolving flesh; can yet in animals whose parts are successive and in continuall flux, produce this deep and perfect glosse of Blacknesse.

Thus having evinced, at least made dubious, the Sunne is not the Authour of this blacknesse; how, and when this tincture first began is yet a riddle, and positively to determine it surpasseth my presumption. Seeing therefore we cannot discover what did effect it, it may afford some piece of satisfaction to know what might procure it. It may be therefore considered, whether the inward use of certain waters or fountains of peculiar operations, might not at first produce the effect in question. For, of the like we have records in Aristotle, Strabo and Pliny, who hath made a collection hereof; as of two fountains in Bœotia, the one making Sheep white, the other black, of the water of Siberis which made Oxen black, and the like effect it had also upon men, dying not only the skin, but making their hairs black and curled. This was the conceit of Aristobulus; who received so little satisfaction from the other, or that it might be caused by heat, or any kinde of fire, that he conceived it as reasonable to impute the effect unto water.

Secondly, It may be perpended whether it might not fall out the same way that Jacobs cattell became speckled, spotted and ring-straked, that is, by the power and efficacy of Imagination; which produceth effects in the conception correspondent unto the phancy of the Agents in generation, and sometimes assimilates the Idea of the generator into a reality in the thing ingendred. For, hereof there passe for current many indisputed examples; so in Hippocrates we reade of one, that from the view and intention of a Picture conceived a Negroe; And in the history of Heliodore of a Moorish Queen, who upon aspection of the Picture of Andromeda, conceived and brought forth a fair one. And thus perhaps might some say it was the beginning of this complexion; induced first by Imagination, which having once impregnated the seed, found afterward concurrent productions; which were continued by Climes, whose constitution advantaged the first impression. Thus Plotinus conceiveth white Peacocks first came in: Thus many opinion that from aspection of the Snow which lyeth long in Northern Regions, and high mountains, Hawks, Kites, Bears, and other creatures become white; And by this way Austin conceiveth the devil provided, they never wanted a white spotted Oxe in Ægypt; for such an one they worshipped, and called Apis.

Thirdly, It is not indisputable whether it might not proceed from such a cause and the like foundation of Tincture, as doth the black Jaundies, which meeting with congenerous causes might settle durable inclinations; and ad-

The particular causes of the Negroes blacknesse, probably,

Vide plura apud Tho. Fienum, de viribus imaginationis.

Why Bears, &c. white in some places. 210. 6.

vance their generations unto that hue, which were naturally before but a degree or two below it. And this transmission we shall the easier admit in colour, if we remember the like hath been effected in organicall parts and figure; the Symmetry whereof being casually or purposely perverted, their morbosities have vigorously descended to their posterities, and that in durable deformities. This was the beginning of Macrocephali or people with long heads, whereof Hippocrates *de Aere, Aquis, & Locis*, hath clearly delivered himself: *Cum primum editus est Infans, caput ejus tenellum manibus effingunt, & in longitudine adolescere cogunt; hoc institutum primum hujusmodi, natura dedit vitium, successu vero temporis in naturam abiit, ut proinde instituto nihil amplius opus esset; semen enim genitale ex omnibus corporis partibus provenit, ex sanis quidem sanum, ex morbosis morbosum: Si igitur ex calvis calvi, ex cecis cecii, & ex distortis, ut plurimum, distorti gignuntur, eademq; in ceteris formis valet ratio, quid prohibet cur non ex macrocephali macrocephali gignantur?* Thus as Aristotle observeth, the Deers of Arginusa had their ears divided; occasioned at first by sitting the ears of Deer. Thus have the Chineses little feet, most Negroes great lips and flat noses; and thus many Spaniards, and Mediterranean Inhabitants, which are of the race of Barbary Moors (although after frequent commixture) have not worn out the Camoys nose unto this day.

Flat nose.

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Lastly, If we still be urged to particularities, and such as declare how and when the seed of Adam did first receive this tincture; we may say that men became black in the same manner that some Foxes, Squirrels, Lions, first turned of this complection, whereof there are a constant sort in divers Countries; that some Chaughes came to have red legges and bills, that Crows became pyed; All which mutations however they began, depend on durable foundations, and such as may continue for ever. And if as yet we must farther define the cause and manner of this mutation; we must confesse, in matters of Antiquity, and such as are decided by History, if their Originals and first beginnings escape a due relation, they fall into great obscurities; and such as future Ages seldome reduce unto a resolution. Thus if you deduct the administration of Angels, and that they dispersed the creatures into all parts after the flood, as they had congregated them into Noahs Ark before; it will be no easie question to resolve, how severall sorts of Animals were first dispersed into Islands, and almost how any into America: How the venereall contagion began in that part of the earth, since history is silent, is not easily resolved by Philosophy. For, whereas it is imputed unto Anthropophagy, or the eating of mans flesh; that cause hath been common unto many other Countries, and there have been Canibals or men-eaters in the three other parts of the world, if we credit the relations of Ptolomy, Strabo and Pliny. And thus, if the favourable pen of Moses had not revealed the confusion of tongues, and positively declared their division at Babel; our disputes concerning their beginning had been without end; and I fear we must have left the hopes of that decision unto Elias. *Malachi. 4. 6.*

How sundry
kinds of Animals
come to be found
in Islands.

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Elias cum ve-
nerit solvet du-
bium. p. 3.

Mal. 4. 5.

And if any will yet insist, and urge the question farther still upon me, I shall be enforced unto divers of the like nature, wherein perhaps I shall receive no greater satisfaction. I shall demand how the Camels of Bactria came to have two bunches on their backs, whereas the Camels of Arabia in all relations have but one? How Oxen in some Countries began and continue gibbous or bunch-bac'kd? what way those many different shapes, colours, hairs, and natures of Dogs came in? how they of some Countries became depilous many without any hair at all, whereas some sorts in excess abound therewith? How the Indian Hare came to have a long tayl, whereas that part in others attains

attains no higher then a scut? How the hogs of Illyria which Aristotle speaks of, became solipedes or whole-hoofed, whereas in all other parts they are bifulcous, and described cloven-hoofed by God himself? All which with many others must needs seem strange unto those that hold there were but two of the unclean sort in the Ark; and are forced to reduce these varieties to unknown originals since.

However therefore this complexion was first acquired, it is evidently maintained by generation, and by the tincture of the skin as a spermatick part translated from father unto son; so that they which are strangers contract it not, and the Natives which transmigrate omit it not without commixture, and that after divers generations. And this affection (if the story were true) might wonderfully be confirmed, by what Maginus and others relate of the Emperour of Æthiopia, or Prester John, who derived from Solomon is not yet descended into the hue of his Country, but remains a *Mulatto*, that is, of a Mongrill complexion unto this day. Now although we conceive this blacknesse to be feminall, yet are we not of Herodotus conceit, that their seed is black. An opinion long ago rejected by Aristotle, and since by sense and enquiry. His assertion against the Historian was probable, that all seed was white; that is without great controversie in viviparous Animals, and such as have Testicles, or preparing vessels wherein it receives a manifest dealbation. And not only in them, but (for ought I know) in Fishes, not abating the seed of Plants; whereof though the skin and covering be black, yet is the seed and fructifying part not so: as may be observed in the seeds of Onyons, Pyonie, and Basill. Most controvertible it seems in the spawn of Frogs, and Lobsters, whereof notwithstanding at the very first the spawn is white, contracting by degrees a blacknesse, answerable in the one unto the colour of the shell, in the other unto the Porwidge or Tadpole; that is, that Animall which first proceedeth from it. And thus may it also be in the generation and sperm of Negroes; that being first and in its naturals white, but upon separation of parts, accidents before invisible become apparent; there arising a shadow or dark efforescence in the outside; whereby not only their legitimate and timely births, but their abortions are also duskie, before they have felt the scorch and fervor of the Sunne.

How the complexion of the Negro's may be propagated.

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CHAP. XI.

of the same.

A Second opinion there is, that this complexion was first a curse of God derived unto them from Cham, upon whom it was inflicted for discovering the nakednesse of Noah. Which notwithstanding is sooner affirmed then proved, and carrieth with it sundry improbabilities. For first, if we derive the curse on Cham, or in generall upon his posterity, we shall Bene-groe a greater part of the earth then ever was so conceived; and not only paint the Æthiopians, and reputed sonnes of Cush, but the people also of Ægypt, Arabia, Assyria, and Chaldea; for by his race were these Countries also peopled. And if concordantly unto Berosus, the fragment of Cato *de Originibus*, some things of Halicarnasseus, Macrobius, and out of them of Leandro and Annius, we shall conceive of the travels of Camefe or Cham; we may introduce a generation of Negroes as high as Italy; which part was never culpable of deformity, but hath produced the magnified examples of beauty.

Secondly,

The Progenie of Cham how farre extended.

Secondly, The curse mentioned in Scripture was not denounced upon Cham, but Canaan his youngest son; and the reasons thereof are divers. The first, from the Jewish Tradition, whereby it is conceived, that Canaan made the discovery of the nakedness of Noah, and notified it unto Cham. Secondly, to have cursed Cham had been to curse all his posterity, whereof but one was guilty of the fact. And lastly, he spared Cham, because he had blessed him before, cap.9. Now if we confine this curse unto Canaan, and think the same fulfilled in his posterity; then doe we induce this complexion on the Sidonians, then was the promised land a tract of Negroes; For from Canaan were descended the Canaanites, Jebusites, Amorites, Gergezites, and Hivites, which were possessed of that Land.

Thirdly, Although we should place the originall of this curse upon one of the sonnes of Cham, yet were it not known from which of them to derive it. For the particularity of their descents is imperfectly set down by accountants, nor is it distinctly determinable from whom thereof the *Æthiopians* are proceeded. For whereas these of Africa are generally esteemed to be the Issue of Chus, the elder sonne of Cham, it is not so easily made out. For the land of Chus, which the Septuagint translates *Æthiopia*, makes no part of Africa; nor is it the habitation of Blackmores, but the Country of Arabia, especially the Happy and Stony; possessions and Colonies of all the sonnes of Chus, excepting Nimrod, and Havilah; possessed and planted wholly by the children of Chus, that is, by Sabtah and Raamah, Sabtacha, and the sonnes of Raamah, Dedan and Sheba, according unto whose names the Nations of those parts have received their denominations, as may be collected from Pliny and Ptolomy; and as we are informed by credible Authors, they hold a fair Analogy in their names, even unto our daies. So the wife of Moses translated in Scripture an *Æthiopian*, and so confirmed by the fabulous relation of Josephus, was none of the daughters of Africa, nor any Negroe of *Æthiopia*, but the daughter of Jethro, Prince and Priest of Madian; which was a part of Arabia the stony, bordering upon the Red Sea. So the Queen of Sheba came not unto Solomon out of *Æthiopia*, but from Arabia, and that part thereof which bore the name of the first planter, the sonne of Chus. So whether the Eunuch which Philip the Deacon baptised, were servant unto Candace Queen of the African *Æthiopia* (although Damianus à Goes, Codignus and the *Æthiopick* relations averre) is yet by many, and with strong suspitions doubted. So that Army of a million, which Zerah King of *Æthiopia* is said to bring against Asa, was drawn out of Arabia, and the plantations of Chus; not out of *Æthiopia*, and the remote habitations of the Moors. For it is said that Asa pursuing his victory, took from him the City Gerar, now Gerar was no city in or near *Æthiopia*, but a place between Cadeth and Zur, where Abraham formerly sojourned. Since therefore these African *Æthiopians* are not convinced by the common acception to be the sons of Chus, whether they be not the posterity of Phut or Mizraim, or both, it is not assuredly determined. For Mizraim, he possessed *Ægypt*, and the East parts of Africa. From Lubym his son came the Lybians, and perhaps from them the *Æthiopians*: Phut possessed Mauritania, and the Western parts of Africa, and from these perhaps descended the Moors of the West, of Mandinga, Meleguette and Guinie. But from Canaan, upon whom the curse was pronounced, none of these had their originall, for he was restrained unto Canaan and Syria; although in after Ages many Colonies dispersed, and some thereof upon the coasts of Africa, and prepossessions of his elder brothers.

Fourthly, To take away all doubt or any probable divarication, the curse

is plainly specified in the Text, nor need we dispute it, like the mark of Cain; *Servus servorum erit fratribus suis*, Cursed be Canaan, a servant of servants shall he be unto his brethren; which was after fulfilled in the conquest of Canaan, subdued by the Israelites, the posterity of Sem. Which Prophecy Abraham well understanding, took an oath of his servant not to take a wife for his son Isaac out of the daughters of the Canaanites; And the like was performed by Isaac in the behalf of his son Jacob. As for Cham and his other sons, this curse attained them not; for Nimrod the son of Chus set up his kingdom in Babylon, and erected the first great Empire; Mizraim and his posterity grew mighty Monarchs in Egypt; and the Empire of the Ethiopians hath been as large as either. Nor did the curse descend in generall upon the posterity of Canaan: for the Sidonians, Arkites, Hamathites, Sinites, Arvadites, and Zemarites seem exempted. But why there being eleven sonnes, five only were condemned, and six escaped the malediction, is a secret beyond discovery.

Lastly, Whereas men affirm this colour was a Curse, I cannot make out the propriety of that name, it neither seeming so to them, nor reasonably unto us; for they take so much content therein, that they esteem deformity by other colours, describing the Devil, and terrible objects, White. And if we seriously consult the definitions of beauty, and exactly perpend what wise men determine thereof, we shall not apprehend a curse, or any deformity therein. For first, some place the essence thereof in the proportion of parts; conceiving it to consist in a comely commensurability of the whole unto the parts, and the parts between themselves; which is the determination of the best and learned Writers. Now hereby the Moors are not excluded from beauty; there being in this description no consideration of colours, but an apt connexion and frame of parts and the whole. Others there be, and those most in number, which place it not only in proportion of parts, but also in grace of colour. But to make Colour essentiall unto Beauty, there will arise no slender difficulty; For Aristotle in two definitions of pulchritude, and Galen in one, have made no mention of colour. Neither will it agree unto the Beauty of Animals; wherein notwithstanding there is an approved pulchritude. Thus horses are handsome under any colour, and the symmetry of parts obscures the consideration of complexions. Thus in concolour animals and such as are confined unto one colour, we measure not their Beauty thereby; for if a Crow or Black-bird grow white, we generally account it more pretty; And even in monstrosity descend not to opinion of deformity. By this way likewise the Moores escape the curse of deformity; there concurring no stationary colour, and sometimes not any unto Beauty.

The Platonick contemplators reject both these descriptions founded upon parts and colours, or either; as M. Leo the Jew hath excellently discoursed in his Genealogy of Love: defining Beauty a formall grace, which delights and moves them to love which comprehend it. This grace say they, discoverable outwardly, is the resplendor and Raye of some interior and invisible Beauty, and proceedeth from the forms of compositions amiable. Whose faculties if they can aptly contrive their matter, they beget in the subject an agreeable and pleasing beauty; if over-ruled thereby, they evidence not their perfections, but runne into deformity. For seeing that out of the same materials, Therites and Paris, Beauty and monstrosity may be contrived; the forms and operative faculties introduce and determine their perfections. Which in naturall bodies receive exactnesse in every kinde, according to the first Idea of the Creator, and in contrived bodies the phancy of the Artificer. And by this

consideration of Beauty, the Moores also are not excluded, but hold a common share therein with all mankind.

Lastly, In whatsoever its Theory consisteth, or if in the generall, we allow the common conceit of symmetry and of colour, yet to descend unto singularities, or determine in what symmetry or colour it consisteth, were a slippery designation. For Beauty is determined by opinion, and seems to have no essence that holds one notion with all; that seeming beauteous unto one, which hath no favour with another; and that unto every one, according as custome hath made it naturall, or sympathy and conformity of mindes shall make it seem agreeable. Thus flat noses seem comely unto the Moore, an Aquiline or hawked one unto the Persian, a large and prominent nose unto the Roman; but none of all these are acceptable in our opinion. Thus some think it most ornamentall to wear their Bracelets on their Wreists, others say it is better to have them about their Ancles; some think it most comely to wear their Rings and Jewels in the Ear, others will have them about their Privities; a third will not think they are compleat except they hang them in their lips, cheeks or noses. Thus Homer to set off Minerva calleth her γλαυκῶπις, that is, gray or light-blue eyed: now this unto us seems farre lesse amiable then the black. Thus we that are of contrary complexions accuse the blacknesse of the Mores as ugly: But the Spouse in the Canticles excuseth this conceit, in that description of hers, I am black, but comely. And howsoever Cerberus, and the furies of hell be described by the Poets under this complexion, yet in the beauty of our Saviour blacknesse is commended, when it is said, his locks are bushie and black as a Raven. So that to inferre this as a curse, or to reason it as a deformity, is no way reasonable; the two foundations of beauty, Symmetry and complexion, receiving such various apprehensions; that no deviation will be expounded so high as a curse or undeniable deformity, without a manifest and confessed degree of monstrosity.

Lastly, It is a very injurious method unto Philosophy, and a perpetuall promotion of ignorance, in points of obscurity, nor open unto easie considerations, to fall upon a present refuge unto Miracles; or recurre unto immediate contrivance from the insearchable hands of God. Thus in the conceit of the evil odor of the Jews, Christians without a farther research into the verity of the thing, or enquiry into the cause, draw up a judgement upon them from the passion of their Saviour. Thus in the wondrous effects of the clime of Ireland, and the freedom from all venemous creatures, the credulity of common conceit imputes this immunity unto the benediction of St Patrick, as Beda and Gyraldus have left recorded. Thus the Ass having a peculiar mark of a crosse made by a black list down his back, and another athwart, or at right angles down his shoulders; common opinion ascribes this figure unto a peculiar signation; since that beast had the honour to bear our Saviour on his back. Certainly this is a course more desperate then Antipathies, Sympathies or occult qualities; wherein by a finall and satisfactive discernment of faith, we lay the last and particular effects upon the first and generall cause of all things; whereas in the other, we doe but palliate our determinations; untill our advanced endeavours doe totally reject, or partially salve their evasions.

CHAP.

see a particular Chap
of this Page 271.

see a reason naturall given
by St Patrick of this immunity 322.

CHAP. XII.

A digression concerning Blacknesse.

There being therefore two opinions repugnant unto each other, it may not be presumptive or skeptically to doubt of both. And because we remain imperfect in the generall theory of Colours, we shall deliver at present a short discovery of blacknesse; wherein although perhaps we afford no greater satisfaction then others, yet shall our attempts exceed any; for we shall empirically and sensibly discourse hereof, deducing the causes of Blacknesse from such originals in nature, as we do generally observe things are denigrated by Art. And herein I hope our progression will not be thought unreasonable; for Art being the imitation of Nature, or Nature at the second hand; it is but a sensible expression of effects dependant on the same, though more removed causes; and therefore the works of the one may serve to discover the other.

And first, things become black by a sootie and fuliginous matter proceeding from the sulphur of bodies torrifed; not taking *fuligo* strictly, but in opposition unto *albus*, that is any kinde of vaporous or madefying excretion; and comprehending *avaSuyiasis*, that is as Aristotle defines it, a separation of moist and dry parts made by the action of heat or fire, and colouring bodies objected. Hereof, in his Meteors, from the qualities of the subject he raiseth three kinds; the exhalations from ligneous and lean bodies, as bones, hair, and the like he calleth *χρῆμα fumus*, from fat bodies and such as have not their fatnesse conspicuous or separated he termeth *λίγνυς fuligo*, as wax, rosin, pitch, or turpentine; that from unctuous bodies, and such whose oilynesse is evident, he nameth *λίπα or nidor*. Now every one of these do black bodies objected unto them, and are to be conceived in the sooty and fuliginous matter expressed.

I say, proceeding from the sulphur of bodies torrifed, that is the oily, fat, and unctuous parts wherein consist the principles of flammability. Not pure and refined sulphur; as in the spirits of wine often rectified; but containing terrestrious parts, and carrying with it the volatile salt of the body, and such as is distinguishable by taste in soot; nor vulgar and usuall sulphur; for that leaves none or very little blacknesse, except a metalline body receive the exhalation.

I say, torrifed, singed, or suffering some impression from fire; thus are bodies casually or artificially denigrated, which in their naturalls are of another complexion; thus are Charcoales made black by an infection of their own suffitus; so is it true what is affirmed of combustible bodies. *Adusta nigra, perusta alba*; black at first from the fuliginous tincture, which being exhaled they become white, as is perceptible in ashes. And so doth fire cleanse and purifie bodies, because it consumes the sulphureous parts, which before did make them foul; and therefore refines those bodies which will never be mudded by water. Thus Camphire of a white substance, by its *fuligo* affordeth a deep black. So is Pitch black, although it proceed from the same tree with Rozen, the one distilling forth, the other forced by fire. So of the suffitus of a torch, do Painters make a velvet black: so is lamp-black made; so of burnt Harts horn a sable; so is Bacon denigrated in chimneys: so in Fevers and hot distempers from choler adust is caused a blacknesse in our tongues, teeth and excretions: so are ustilago, brant corn and trees black by blasting;

Why the smoake
of pure Sulphur
blacks not.

so parts cauterized, gangrenated, fiderated and mortified, become black, the radicall moisture, or vitall sulphur suffering an extinction, and smothered in the part affected. So not only actuall but potentiall fire; nor burning fire, but also corroding water will induce a blacknesse. So are Chimneys and Furnaces generally black, except they receive a clear and manifest sulphur; for the smoak of sulphur will not black a paper, and is commonly used by Women to whiten Tiffanies; which it performeth by an acide vitriolous, and penetrating spirit ascending from it, by reason whereof it is not apt to kindle any thing; nor will it easily light a Candle, untill that spirit be spent, and the flame approacheth the match. And this is that acide and piercing spirit which with such activity and compunction invadeth the brains and nostrils of those that receive it. And thus when Bellonius affirmeth that Charcoals made out of the wood of Oxycedar are white, Dr Jordan in his judicious Discourse of minerrall waters yeeldeth the reason, because their vapours are rather sulphureous then of any other combustible substance. So we see that Tinby coals will not black linnen being hanged in the smoak thereof, but rather whiten it, by reason of the drying and penetrating quality of sulphur, which will make red Roses white. And therefore to conceive a generall blacknesse in Hell, and yet therein the materiall flames of sulphur, is no Philosophicall conception; nor will it consist with the reall effects of its nature.

These are the advenient and artificiall waies of denigration, answerably whereto may be the naturall progresse. These are the waies whereby culinary and common fires do operate, and correspondent hereunto may be the effects of fire elementall. So may Bitumen, coals, Jet, black lead, and divers minerall earths become black; being either fuliginous concretions in the earth, or suffering a scorch from denigrating principles in their formation. So men and other animals receive different tinctures from constitution and complectionall efflorescencies, and descend still lower, as they partake of the fuliginous and denigrating humour. And so may the Ethiopians or Negroes become coal-black, from fuliginous efflorescences and complectionall tinctures arising from such probabilities, as we have declared before.

What the common
Copperose
is.

The second way whereby bodies become black, is an Atramentous condition or mixture, that is a vitriolate or copperose quality conjoyning with a terrestrious and astringent humidity; for so is *Atramentum scriptorium*, or writing Inke commonly made, by copperose cast upon a decoction or infusion of galls. I say, a vitriolous or copperous quality; for vitrioll is the active or chief ingredient in Inke, and no other salt that I know will strike the colour with galls; neither Alom, Sal-gemme, Nitre, nor Armoniack. Now artificiall copperose, and such as we commonly use, is a rough and acrimonious kinde of salt drawn out of ferreous and eruginous earths, partaking chiefly of Iron and Copper; the blew of Copper, the green most of Iron: Nor is it unusuall to dissolve fragments of Iron in the liquor thereof, for advantage in the concretion. I say, a terrestrious or astringent humidity; for without this there will ensue no tincture; for copperose in a decoction of Lettuce or Mallows affords no black, which with an astringent mixture it will do, though it be made up with oyl as in printing and painting Inke. But whereas in this composition we use only Nut-galls, that is an excrescence from the Oak, therein we follow and beat upon the old receipt; for any plant of austere and stiptick parts will suffice, as I have experimented in Bristorte, Myrobolans, Myrtus Brabantica, Balaustium and Red-Roses. And indeed, most decoctions of astringent plants, of what colour soever, do leave in the liquor a deep and Muscadine red; which by addition of vitrioll descend into a black: And so Dioscorides in his receipt of Inke, leaves out gall, and with copperose makes use of foot.

Now

Now if we enquire in what part of vitrioll this Atramentall and denigrating condition lodgeth, it will seem especially to lye in the more fixed salt thereof; For the phlegm or aqueous evaporation will not denigrate, nor yet spirits of vitriol, which carry with them volatile and nimbler Salt: For if upon a decoction of Copperose and gall, be powred the spirits or oyl of vitriol, the liquor will relinquish his blacknesse; the gall and parts of the copperose precipitate unto the bottom; and the Inke grow clear again; which indeed it will not so easily do in common Inke, because that gumme is dissolved therein, which hindereth the separation. But Colcothar or vitriol burnt, though unto a rednesse containing the fixed salt, will make good Inke, and so will the Lixivium, or Lye made thereof with warm water; but the Terra or Insipid earth remaining, affords no black at all, but serves in many things for a grosse and usefull red. And though spirits of vitriol, projected upon a decoction of galls, will not raise a black, yet if these spirits be any way fixed, or return into vitriol again, the same will ~~not~~ act their former parts and denigrate as before.

And if we yet make a more exact enquiry, by what this salt of vitriol more peculiarly gives this colour, we shall finde it to be from a metalline condition, and especially an Iron property or ferreous participation. For blew Copperose which deeply partakes of the copper will do it but weakly; Verdigrise which is made of copper will not do it at all; But the filings of Iron infused in vinegar, will with a decoction of galls make good Inke, without any copperose at all; and so will infusion of Loadstone; which is of affinity with Iron. And though more conspicuously in Iron, yet such a Calcanthous or Atramentous quality, we will not wholly reject in other mettals; whereby we often observe black tinctures in their solutions. Thus a Lemmon, Quince or sharp Apple cut with a knife becomes immediatly black: And from the like cause, Artichokes, so sublimate beat up with whites of Egges, if touched with a knife becomes incontinently black. So *Aqua fortis*, whose ingredient is vitriol will make white bodies black. So leather dressed with the bark of Oak, is easily made black by a bare solution of Copperose: So divers Minerrall waters and such as participate of Iron, upon an infusion of galls become of a dark colour, and entring upon black. So steel infused, makes not only the liquor duskie, but in bodies wherein it concurs with proportionable tinctures makes also the excretions black. And so also from this vitriolous quality *Mercurius Dulcis*, and vitriol vomitive occasion black ejections. But whether this denigrating quality in Copperose proceedeth from an Iron participation, or rather in Iron from a vitriolous communication; or whether black tinctures from metallical bodies be not from vitriolous parts contained in their sulphur, since common sulphur containeth also much vitriol, it may admit consideration.

Such a condition there is naturally in some living creatures. Thus that black humour by Aristotle named *θελος*, and commonly translated *Atramentum*, may be occasioned in the Cuttle. Such a condition there is naturally in some Plants, as Black-berries, Walnut-rindes, Black-cherries; whereby they extinguish inflammations, corroborate the stomach, and are esteemed specificall in the Epilepsie. Such an Atramentous condition there is to be found sometime in the blood, when that which some call Acetum, others Vitriolum, concurs with parts prepared for this tincture. And so from these conditions the Moors might possibly become Negroes, receiving Atramentous impressions in some of those waies, whose possibilitie is by us declared.

Nor is it strange that we affirm there are vitriolous parts, qualities, and

How a vitriolous
quality may be in
living bodies,

Whence the co-
lours of Plants,
&c. may arise.

even at some distance Vitriol it self in living bodies; for there is a sower, stick-tick salt diffused through the earth, which passing a concoction in plants, becometh milder and more agreeable unto the sense; and this is that vegetable vitriol; whereby divers plants contain a gratefull sharpnesse, as Lemmons, Pomegranates, Cherries; or an austere and inconcocted roughnesse, as Sloes, Medlars and Quinces. And that not only vitriol is a cause of blacknesse, but that the salts of naturall bodies do carry a powerfull stroak in the tincture and vernish of all things, we shall not deny, if we contradict not experience, and the visible art of Dyars; who advance and graduate their colours with Salts. For the decoctions of simples which bear the visible colours of bodies decocted, are dead and evanid, without the commixtion of Alum; Argol and the like. And this is also apparent in Chymicall preparations. So Cinaber becomes red by the acide exhalation of sulphur, which otherwise presents a pure and niveous white. So spirits of Salt upon a blew paper make an orient red. So Tartar or vitriol upon an infusion of violets affords a delightfull crimson. Thus it is wonderfull what variety of colours the spirits of Saltpeter, and especially, if they be kept in a glasse while they pierce the sides thereof; I say, what Orient greens they will project: from the like spirits in the earth the plants thereof perhaps acquire their verdure. And from such solary irradiations may those wondrous varieties arise, which are observable in Animals, as Mallards heads, and Peacocks feathers, receiving intention or alteration according as they are presented unto the light. Thus Saltpeter, Ammoniack and Mineral spirits emit delectable and various colours; and common *Aqua fortis* will in some green and narrow mouthed glasses, about the verges thereof, send forth a deep and Gentianella blew.

Thus have we at last drawn our conjectures unto a period; wherein if our contemplations afford no satisfaction unto others, I hope our attempts will bring no condemnation on our selves; (for besides that adventures in knowledge are laudable, and the assays of weaker heads afford oftentimes improveable hints unto better) although in this long journey we misse the intended end; yet are there many things of truth disclosed by the way; and the collaterall verity, may unto reasonable speculations, requite the capitall indicovery.

CHAP. XIII.

Of Gypsies.

Opinions con-
cerning the ori-
ginal of Gypsies.

Much wonder it is not we are to seek in the originall of Æthiopians and natural Negroes, being also at a losse concerning the Original of Gypsies and counterfeit Moors, observable in many parts of Europe, Asia, and Africa.

Common opinion deriveth them from Ægypt, and from thence they derive themselves, according to their own account hereof, as Munster discovered in the letters and passe, which they obtained from Sigismund the Emperour, that they first came out of lesser Ægypt, that having defected from the Christian rule, and relapsed unto Pagan rites, some of every family were enjoined this penance, to wander about the world; or as Aventinus delivereth, they pretend for this vagabond course, a judgement of God upon their forefathers, who refused to entertain the Virgin Mary and Jesus, when she fled into their Countrey.

Which account notwithstanding is of little probability: for the generall stream

stream of writers, who enquire into their originall, insist not upon this; and are so little satisfied in their descent from Ægypt, that they deduce them from severall other nations: Polydore Virgil accounting them originally Syrians, Philippus Bergoinas fetcheth them from Chaldaa, Æneas Sylvius from some part of Tartarie, Bellonius no further then Walachia and Bulgaria, nor Aventinus then the confines of Hungaria.

That they are no Ægyptians Bellonius maketh evident: who met great droves of Gypsies in Ægypt, about Gran Cairo, Matarea, and the villages on the banks of Nilus: who notwithstanding were accounted strangers unto that Nation, and wanderers from forreign parts, even as they are esteemed with us.

That they came not out of Ægypt is also probable, because their first appearance was in Germany, since the year 1400. nor were they observed before in other parts of Europe, as is deducible from Munster, Genebrard, Crantsius and Ortelius.

But that they first set out not farre from Germany, is also probable from their language, which was the Slavonian tongue; and when they wandered afterward into France, they were commonly called Bohemians, which name is still retained for Gypsies. And therefore when Crantsius delivereth, they first appeared about the Baltick Sea, when Bellonius deriveth them from Bulgaria and Walachia, and others from about Hungaria, they speak not repugnantly hereto: for the language of those Nations was Slavonian, at least some dialect thereof.

But of what nation soever they were at first, they are now almost of all, associating unto them some of every countrey where they wander; when they will be lost, or whether at all again, is not without some doubt: for unsetled nations have out-lasted others of fixed habitations: and though Gypsies have been banished by most Christian Princes, yet have they found some countenance from the great Turk, who suffereth them to live and maintain publick Strews near the Imperiall city in Pera, of whom he often maketh a politick advantage, imploing them as spies into other nations, under which title they were banished by Charles the fifth.

Fernand. de Cordua didas. cal. multipl.

Observat. lib. 2.

Gypsies first known in Germany.

Bellon. observat. lib. 2. what use the Grand Signior maketh of Gypsies.

CHAP. XIV.

Of some others.

WE commonly accuse the phancies of elder times in the improper figures of heaven assigned unto Constellations, which do not seem to answer them, either in Greek or Barbarick Spheres: yet equall incongruities have been commonly committed by Geographers and Historians, in the figurall resemblances of severall regions on earth; while by Livy and Julius Rusticus the Island of Britain is made to resemble a long dish or two-edged axe; Italy by Numatianus to be like an Oak-leaf: and Spain an Oxe hide: while the phancy of Strabo makes the habitated earth like a cloak, and Dionysius Afer will have it like a sling: with many others observable in good writers, yet not made out from the letter or signification; acquitting Astronomy in their figures of the Zodiack: wherein they are not justified unto strict resemblances, but rather made out from the effects of Sun or Moon, in these severall portions of heaven, or from peculiar influences of those constellations. which some way make good their names.

Tacit. de vita lul. Agric.

Iustin in Sph. 2. de sacro bos. co. cap. 2.

Which

Which notwithstanding being now authentick by prescription, may be retained in their naked acceptions, and names translated from substances known on earth: And therefore the learned Hevelius in his accurate Selenography, or description of the Moon, hath well translated the known appellations of regions, Seas and Mountains, unto the parts of that Luminary: and rather then use invented names or humane denominations, with witty congruity hath placed Mount Sinai, Taurus, Maotis Palus, the Mediterranean Sea, Mauritania, Sicily, and Asia Minor in the Moon.

More hardly can we finde the Hebrew letters in the heavens, made out of the greater and lesser Starres, which put together do make up words, wherein Cabalisticall Speculators conceive they read the events of future things; and how from the Starres in the head of Medusa, to make out the word Charab; and thereby desolation presignified unto Greece or Javan, numerally characterized in that word, requireth no rigid reader.

It is not easie to reconcile the different accounts of longitude, while in modern tables the hundred and eighty degree, is more then thirty degrees beyond that part, where Ptolomy placeth an 180. Nor will the wider and more Western term of Longitude, from whence the moderns begin their commensuration, sufficiently salve the difference. The ancients began the measure of Longitude from the fortunate Islands or Canaries, the Moderns from the Azores or Islands of St Michael; but since the Azores are but fifteen degrees more West, why the Moderns should reckon 180. where Ptolomy accounteth above 220. or though they take in 15 degrees at the West, they should reckon 30 at the East, beyond the same measure, is yet to be determined; nor would it be much advantaged, if we should conceive that the compute of Ptolomy were not so agreeable unto the Canaries, as the Hesperides or Islands of Cabo Verde.

Whether the compute of moneths from the first appearance of the Moon, which divers nations have followed, be not a more perturbed way, then that which accounts from the conjunction, may seem of reasonable doubt; nor only from the uncertainty of its appearance in foul and cloudie weather, but unequall time in any, that is sooner or later, according as the Moon shall be in the signs of long descension, as Pisces, Aries, Taurus, in the Perigeum or swiftest motion, and in the Northern Latitude: whereby sometimes it may be seen the very day of the change, as will observably happen 1654. in the moneths of April and May? or whether also the compute of the day, be exactly made, from the visible arising or setting of the Sunne, because the Sunne is sometimes naturally set, and under the Horizon, when visibly it is above it; from the causes of refraction, and such as make us behold a piece of silver in a basin, when water is put upon it, which we could not discover before, as under the verge thereof?

Whether the globe of the earth be but a point, in respect of the Stars and Firmament, or how if the raies thereof do fall upon a point, they are received in such variety of Angles, appearing greater or lesser from differences of refraction?

Whether if the motion of the Heavens should cease a while, all things would instantly perish? and whether this assertion doth not make the frame of sublunary things, to hold too loose a dependency upon the first and conserving cause? at least impute too much unto the motion of the heavens, whose eminent activities are by heat, light and influence, the motion it self being barren, or chiefly serving for the due application of celestially virtues unto sublunary bodies, as Cabeus hath learnedly observed?

Whether

be Cabala of the
stars.

of the
Moon.

Alban Kir.
cher. in pro-
emo.

Robertus Hues,
de globis.

Hevel Selenog.
cap 9.

When the Moon
will be seen on
the first day of the
change.

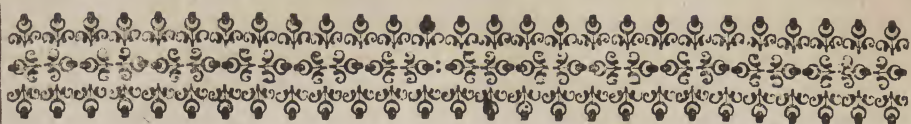
Why the Sunne
is seen after it is
set, or naturally
under the horizon.

To what the mo-
tion of the Hea-
ven serveth,
Met. Lib.

Whether Comets or blazing Starres be generally of such terrible effects, as elder times have conceived them: for since 'tis found that many, from whence these predictions are drawn, have been above the Moon, why they may not be qualified from their positions, and aspects which they hold with Starres of favourable natures; or why since they may be conceived to arise from the effluviūms of other Starres, they may not retain the benignity of their originals; or since the natures of the fixed Starres, are astrologically differenced by the Planets, and are esteemed Martiall or Joviall, according to the colours whereby they answer these Planets; why although the red Comets do carry the portensions of Mars, the brightly white should not be of the influence of Jupiter or Venus, answerably unto Cor Scorpj and Arcturus, is not absurd to doubt.

Q q

THE



THE SEVENTH BOOK:

Concerning many Historicall Tenents generally received, and some deduced from the History of holy Scripture.

CHAP. I.

Of the Forbidden Fruit.

Opinions, of what kinde the forbidden fruit was.



That the Forbidden fruit of Paradise was an Apple, is commonly beleevd, confirmed by Tradition, perpetuated by writings, verses, Pictures; and some have been so bad Profodians, as from thence to derive the Latine word *Malum*, because that fruit was the first occasion of evil; wherein notwithstanding determinations are presumptuous, and many I perceive are of another belief. For some have conceived it a Vine; in the mystery of whose fruit lay the expiation of the Transgression: Goropius Becanus reviving the conceit of Barcephas, peremptorily concludeth it to be the Indian Fig-tree; and by a witty Allegory labours to confirm the same. Again, some fruits passe under the name of Adams apples, which in common acception admit not that appellation; the one described by Mathiolus under the name of *Pomum Adami*; a very fair fruit, and not unlike a Citron, but somewhat rougher, chopt and cranied, vulgarly conceived the marks of Adams teeth. Another, the fruit of that plant Serapion termeth *Musa*, but the Eastern Christians commonly the Apples of Paradise; not resembling an apple in figure, and in taste a Melon or Cowcumber. Which fruits although they have received appellations suitable unto the Tradition, yet can we not from thence inferre they were this fruit in question: No more then *Arbor vitæ*, so commonly called, to obtain its name from the tree of life in Paradise; or *Arbor Judæ*, to be the same which supplied the gibbet unto Judas.

Again, There is no determination in the Text; wherein is only particularized that it was the fruit of a tree good for food and pleasant unto the eye, in which regards many excell the Apple; and therefore learned men do wisely conceive it inexplicable; and Philo puts determination unto despair, when he affirmeth the same kinde of fruit was never produced since. Surely, were it not requisite to have been concealed, it had not passed unspecified; nor the tree revealed which concealed their nakednesse, and that concealed which

revealed

revealed it; for in the same Chapter mention is made of Fig-leaves. And the like particulars although they seem uncircumstantiall are oft set down in holy Scripture; so is it specified that Elias sate under a Juniper tree, Absolom hanged by an Oak, and Zacheus got up into a Sycomore.

And although to condemn such indeterminables, unto him that demanded on what hand Venus was wounded, the Philosopher thought it a sufficient resolution to reinquire upon what leg King Philip halted; and the Jews not undoubtedly resolved of the Sciatica side of Jacob, do cautelously in their diet abstain from the sinews of both: yet are there many nice particulars which may be authentically determined. That Peter cut off the right ear of Malchus, is beyond all doubt. That our Saviour ate the Passeeover in an upper room, we may determine from the Text; and some we may concede which the Scripture plainly defines not. That the Dyall of Ahaz was placed upon the West side of the Temple, we will not deny, or contradict the description of Adricomius. That Abrahams servant put his hand under his right thigh, we shall not question; and that the Thief on the right hand was saved, and the other on the left reprobated, to make good the Method of the last judiciall dismission, we are ready to admit. But surely in vain we enquire of what wood was Moses rod, or the tree that sweetned the waters. Or though tradition or humane history might afford some light; whether the crown of thorns was made of Paliurus, whether the crosse of Christ were made of those four woods in the Distick of Durantes, or only of Oak according unto Lipsius and Goropius, we labour not to determine; for though hereof prudent Symbols and pious Allegories be made by wiser conceivers; yet common heads will flye unto superstitious applications, and hardly avoid miraculous or magicall expectations.

Now the ground or reason that occasioned this expression by an Apple, might be the community of this fruit, and which is often taken for any other. So the Goddesse of gardens is termed *Pomona*; so the Proverb expresseth it to give Apples unto Alcinous; so the fruit which Paris decided was called an Apple; so in the garden of Hesperides (which many conceive a fiction drawn from Paradise) we reade of golden Apples guarded by the Dragon; and to speak strictly in this appellation, they placed it more safely then any other; for beside the great variety of Apples, the word in Greek comprehendeth Orenge, Lemmons, Citrons, Quinces; and as Ruellius defineth, such fruits as have no stone within, and a soft covering without; excepting the Pomegranate, and will extend much farther in the acception of Spigelius; who comprehendeth all round fruits under the name of Apples, not excluding Nuts and Plums.

It hath been promoted in some constructions from a passage in the Canticles, as it runnes in the vulgar Translation, *Sub arbore malo suscitavi te, illic corrupta est mater tua, ibi violata est genetrix tua*; which words notwithstanding parabollically intended, admit no literall inference; and are of little force in our translation, I raised thee under an Apple-tree, there thy mother brought thee forth, there she brought thee forth that bare thee. So when from a basket of Summer fruits or Apples, as the Vulgar rendreth them, God by Amos foretold the destruction of his people, we cannot say they had any reference unto the fruit of Paradise, which was the destruction of man; but thereby was declared the propinquity of their desolation; and that their tranquillity was of no longer duration then those horary or soon decaying fruits of Summer. Nor when it is said in the same Translation, *Poma desiderii animæ tuæ discesserunt à te*, the Apples that thy soul lusted after are departed from thee, is there any allusion therein unto the fruit of Paradise. But

Jacobs Sciatica,
See Gen 32 25,
33 32.

Pes cedrus est,
truncus cupressus,
oliva super-
premium, pal-
mas transver-
sas Christi sunt
in cruce lignum.
223.

Ruel. de stirpi-
um natura.
Isagoge in rem
Herbariam.

Cant. 8.

Fruilus borei.

Philostat.
figur. 6. De A-
meribus.

Opinions of what
kinde the Serpent
was, &c.

thereby is threatned unto Babylon, that the pleasures and delights of their palate should forsake them. And we reade in Pierius, that an Apple was the Hieroglyphick of Love, and that the Statua of Venus was made with one in her hand. So the little Cupids in the figures of Philostratus do play with Apples in a garden, and there want not some who have symbolized the Apple of Paradise unto such constructions.

Since therefore after this fruit curiosity fruitlessly enquireth, and confidence blindly determineth, we shall surcease our Inquisition; rather troubled that it was tasted, then troubling our selves in its decision; this only we observe, when things are left uncertain men will assure them by determination. Which is not only verifed concerning the fruit, but the Serpent that perswaded; many defining the kinde or species thereof. So Bonaventure and Comestor affirm it was a Dragon, Eugubinus a Basilisk, Delrio a viper, and others a common snake. Wherein men still continue the delusion of the Serpent, who having deceived Eve in the main, sets her posterity on work to mistake in the circumstance, and endeavours to propagate errors at any hand. And those he surely most desireth which concern either God or himself; for they dishonour God who is absolute truth and goodnesse; but for himself, who is extreemly evill, and the worst we can conceive; by aberration of conceit they extenuate his depravity, and ascribe some goodnesse unto him.

CHAP. II.

That a Man hath one Rib lesse then a Woman.

THat a Man hath one Rib lesse then a Woman, is a common conceit derived from the history of Genesis, wherein it stands delivered, that Eve was framed out of a Rib of Adam; whence 'tis concluded the sex of man still wants that rib our Father lost in Eve. And this is not only passant with the many, but was urged against Columbus in an Anatomy of his at Pisa; where having prepared the Sceleton of a Woman that chanced to have thirteen ribs on one side, there arose a party that cried him down, and even unto oathes affirmed, this was the rib wherein a woman exceeded. Were this true, it would autoptically silence that dispute out of which side Eve was framed; it would determine the opinion of Oleaster, that she was made out of the ribs of both sides; or such as from the expression of the Text maintain there was a plurality required, and might indeed decry the parabolical exposition of Origen, Cajetan, and such as fearing to concede a monstrosity, or mutilate the integrity of Adam; preventively conceive the creation of thirteen ribs.

Os ex ossibus
meis.

How many ribs
commonly in men
and women.

But this will not consist with reason or inspection. For if we survey the Sceleton of both sexes, and therein the compage of bones, we shall readily discover that men and women have four and twenty ribs; that is, twelve on each side; seven greater annexed unto the Sternon, and five lesser which come short thereof; wherein if it sometimes happen that either sex exceed, the conformation is irregular, deflecting from the common rate or number, and no more inferrible upon mankind, then the monstrosity of the son of Rapha, or the vitious excesse in the number of fingers and toes. And although some difference there be in figure, and the female *os inominatum* be somewhat more protuberant, to make a fairer cavity for the Infant; the coccyx sometime more re-
flected

lected to give the easier delivery, and the ribs themselves seem a little flatter, yet are they equall in number. And therefore while Aristotle doubteth the relations made of Nations, which had but seven ribs on a side, and yet delivereth that men have generally no more then eight; as he rejecteth their history, so can we not accept of his Anatomy.

Again, although we concede there wanted one rib in the Skeleton of Adam, yet were it repugnant unto reason and common observation that his posterity should want the same. For we observe that mutilations are not transmitted from father unto son; the blinde begetting such as can see, men with one eye children with two, and cripples mutilate in their own persons do come out perfect in their generations. For, the seed conveigheth with it not only the extract and single Idea of every part, whereby it transmits their perfecti-
ons or infirmities; but double and over again; whereby sometimes it multi-
pliciously delineates the same, as in Twins in mixed and numerous genera-
tions. And to speak more strictly, parts of the seed do seem to contain the I-
dea and power of the whole; so parents deprived of hands, beget manuell
issues; and the defect of those parts is supplied by the Idea of others. So in
one grain of corn appearing similary and insufficient for a plurall germination,
there lyeth dormant the virtuality of many other; and from thence some-
times proceed an hundred ears. And thus may be made out the cause of
multiparous productions; for though the seminall materials disperse and se-
parate in the matrix, the formative operator will not delineate a part, but
endeavour the formation of the whole; effecting the same as farre as the
matter will permit; and from divided materials attempt entire formations.
And therefore, though wondrous strange, it may not be impossible what
is confirmed at Lausdun concerning the Countesse of Holland, nor what
Albertus reports of the birth of an hundred and fifty. And if we consider the
magnalities of Generation in some things, we shall not controvert its possi-
bilities in others; nor easily question that great work, whose wonders are
only second unto those of the Creation; and a close apprehension of the
one, might perhaps afford a glimmering light; and crepusculous glance of the
other.

+ In anatomia & astrologia non
 o credendus Ptolemaeus. Map.

That every part of
the seed contains
the Idea of the
whole animate.

235

96.

CHAPTER. III.

Of Methuselah.

WHat hath been every where opinion'd, by all men, and in all times; is more then Paradoxically to dispute; and so that Methuselah was the longest liver of all the posterity of Adam we quietly beleeve: but that he must needs be so, is perhaps below Paralogy to deny. For hereof there is no determination from the Text; wherein it is only particular'd he was the longest liver of all the Patriarchs whose age is there expressed; but that he outlived all others we cannot well conclude. For of those nine whose death is mentioned before the flood, the Text expresseth that Enoch was the shortest liver; who saw but three hundred sixty five years. But to affirm from hence, none of the rest, whose age is not expressed, did die before that time; is surely an illation whereto we cannot assent.

Again, Many persons there were in those daies of longevity, of whose age notwithstanding there is no account in Scripture; as of the race of Cain, the wives of the nine Patriarches, with all the sons and daughters that every one

vid. 254. q.

begat; whereof perhaps some persons might outlive Methuselah; the Text intending only the masculine line of Seth, conduceable unto the Genealogy of our Saviour, and the antediluvian Chronology. And therefore we must not contract the lives of those which are left in silence by Moses; for neither is the age of Abel expressed in the Scripture, yet is he conceived farre elder then commonly opinion'd: and if we allow the conclusion of his Epitaph as made by Adam, and so set down by Salian, *Posuit merens pater, cui à filio justius positum foret, Anno ab ortu rerum 130. Ab Abele nato 129.* we shall not need to doubt. Which notwithstanding Cajetan and others confirm; nor is it improbable, if we conceive that Abel was born in the second year of Adam, and Seth a year after the death of Abel: for so it being said, that Adam was an hundred and thirty years old when he begat Seth, Abel must perish the year before, which was one hundred twenty nine.

And if the account of Cain extend unto the Deluge, it may not be improbable that some thereof exceeded any of Seth. Nor is it unlikely in life, riches, power and temporall blessings, they might surpassse them in this world, whose lives related unto the next. For so when the seed of Jacob was under affliction and captivity, that of Ismael and Esau flourished and grew mighty, there proceeding from the one twelve Princes, from the other no lesse then fourteen Dukes and eight Kings. And whereas the age of Cain and his posterity is not delivered in the Text, some do save it from the secret method of Scripture, which sometimes wholly omits, but seldome or never delivers the intire duration of wicked and faithlesse persons, as is observable in the history of Esau, and the Kings of Israel and Judah. And therefore when mention is made that Ishmael lived 137 years, some conceive he adhered unto the faith of Abraham; for so did others who were not descended from Jacob; for Job is thought to be an Idumean, and of the seed of Esau.

Tob thought by
some to be of the
race of Esau.

Lastly (although we rely not thereon) we will not omit that conceit urged by learned men, that Adam was elder then Methuselah; inasmuch as he was created in the perfect age of man, which was in those daies fifty or sixty years; for about that time we reade that they begat children; so that if unto 930 we adde 60 years, he will exceed Methuselah. And therefore if not in length of daies, at least in old age he surpassed others; he was older then all, who was never so young as any. For though he knew old age, he was never acquainted with puberty, youth or Infaney; and so in a strict account he begat children at one year old. And if the usuall compute will hold, that men are of the same age which are born within compasse of the same year; Eve was as old as her husband and parent Adam, and Cain their son coetaneous unto both.

Now that conception that no man did ever attain unto a thousand years, because none should ever be one day old in the sight of the Lord, unto whom according to that of David, A thousand years are but one day; doth not advantage Methuselah. And being deduced from a popular expression, which will not stand a Metaphysicall and strict examination, is not of force to divert a serious enquirer. For unto God a thousand years are no more then one moment, and in his sight Methuselah lived no nearer one day then Abel, for all parts of time are alike unto him, unto whom none are referrible; and all things present, unto whom nothing is past or to come. And therefore, although we be measured by the Zone of time, and the flowing and continued instants thereof, do weave at last a line and circle about the eldest; yet can we not thus commensurate the sphere of Trismegistus; or sum up the unsuccessive and stable duration of God.

CHAP. IIII.

That there was no Rainbow before the Flood.

THat there shall no Rainbow appear forty years before the end of the world, and that the preceding drought unto that great flame shall exhaust the materials of this Meteor, was an assertion grounded upon no solid reason: but that there was not any in sixteen hundred years, that is, before the flood, seems deduceable from holy Scripture, *Gen. 9.* I do set my bow in the clouds, and it shall be for a token of a Covenant between me and the earth. From whence notwithstanding we cannot conclude the nonexistence of the Rainbow; nor is that Chronology naturally established, which computeth the antiquity of effects arising from physicall and settled causes, by additionall impositions from voluntary determinators. Now by the decree of reason and Philosophy, the Rainbow hath its ground in Nature, and caused by the raies of the Sunne, falling upon a roride and opposite cloud: whereof some reflected, others refracted beget that semicircular variety we generally call the Rainbow; which must succeed upon concurrence of causes and subjects aptly pradisposed. And therefore, to conceive there was no Rainbow before, because God chose this out as a token of the Covenant, is to conclude the existence of things from their signalities; or of what is objected unto the sense, a coexistence with that which is internally presented unto the understanding. With equall reason we may inferre there was no water before the institution of Baptism, nor bread and wine before the holy Eucharist.

Again, while men deny the antiquity of one Rainbow, they anciently concede another. For, beside the solary Iris which God shewed unto Noah, there is another *Lunary*, whose efficient is the Moon, visible only in the night, most commonly at full Moon, and some degrees above the Horizon. Now the existence hereof men do not controvert, although effected by a different Luminary in the same way with the other. And probably appeared later; as being of rare appearance and rarer observation, and many there are which think there is no such thing in Nature. And therefore by casuall spectators they are lookt upon like prodigies, and significations made, not signified by their natures.

Lastly; We shall not need to conceive God made the Rainbow at this time, if we consider that in its created and predisposed nature, it was more proper for this signification then any other Meteor or celestially appearance whatsoever. Thunder and lightning had too much terrour to have been tokens of mercy; Comets or blazing Stars appear too seldome to put us in minde of a Covenant to be remembred often; and might rather signifie the world should be once destroyed by fire, then never again by water. The Galaxia or milkie Circle had been more probable; for (beside that unto the latitude of thirty it becomes their Horizon twice in four and twenty hours, and unto such as live under the *Æquator*, in that space the whole Circle appeareth) part thereof is visible unto any situation; but being only discoverable in the night and when the ayr is clear, it becomes of unfrequent and comfortlesse signification. A fixed Star had not been visible unto all the Globe, and so of too narrow a signality in a Covenant concerning all. But Rainbows are seen unto all the world, and every position of sphere. Unto our own elevation they may appear in the morning, while the Sunne hath attained about forty five degrees

33

That there is a
Rainbow of the
Moon.

33

degrees above the Horizon (which is conceived the largest semidiameter of any Iris) and so in the afternoon when it hath declined unto that altitude again; which height the Sun not attaining in Winter, Rainbows may happen with us at noon or any time. Unto a right position of sphere they may appear three hours after the rising of the Sun, and three before its setting; for the Sun ascending fifteen degrees an hour, in three attaineth forty five of altitude. Even unto a parallel sphere, and such as live under the pole, for half a year some segments may appear at any time and under any quarter, the Sun not setting, but walking round about them.

The naturall signification of the Rainbow.

But the propriety of its Election most properly appeareth in the naturall signification and prognostick of it self; as containing a mixt signality of rain and fair weather. For being in a roride cloud and ready to drop, it declareth a pluvius disposure in the air; but because when it appears the Sun must also shine, there can be no universall showrs, and consequently no deluge. Thus when the windows of the great deep were open, in vain men lookt for the Rainbow: for at that time it could not be seen, which after appeared unto Noah. It was therefore existent before the flood, and had in Nature some ground of its addition. Unto that of Nature God superadded an assurance of his promise, that is, never to hinder its appearance, or so to replenish the heavens again as that we should behold it no more. And thus, without disparaging the promise, it might rain at the same time when God shewed it unto Noah; thus was there more therein then the Heathens understood, when they called it the *Nuncia* of the gods, and the laugh of weeping heaven; and thus may it be elegantly said, I put my Bow, not my Arrow in the clouds, that is, in the menace of Rain the mercy of fair weather.

Risus plorantis Olympi.

Isa. 34. 4.

Cabalisticall heads, who from that expression in Esay, do make a book of heaven, and reade therein the great concernments of earth, do literally play on this, and from its semicircular figure, resembling the Hebrew letter Caph , whereby is signified the uncomfortable number of twenty, at which Joseph was sold, which Jacob lived under Laban, and at which men were to go to war; do note a propriety in its signification; as thereby declaring the dismall time of the deluge. And Christian conceits do seem to strain as high, while from the irradiation of the Sunne upon a cloud, they apprehend the mystery of the Sunne of righteousness in the obscurity of flesh, by the colours green and red; the two destructions of the world by fire and water; or by the colours of blood and water, the mysteries of Baptisme, and the holy Eucharist.

Laudable therefore is the custome of the Jews, who upon the appearance of the Rainbow, do magnifie the fidelity of God in the memory of his Covenant; according to that of Syracides, Look upon the Rainbow, and praise him that made it. And though some pious and Christian pens have only symboliz'd the same from the mystery of its colours, yet are there other affections which might admit of Theologicall allusions; nor would he finde a more improper subject, that should consider that the colours are made by refraction of light, and the shadows that limit that light; that the Center of the Sun, the Rainbow, and the eye of the beholder must be in one right line; that the spectator must be between the Sunne and the Rainbow; that sometime three appear, sometime one reversed. With many others, considerable in Meteorologicall Divinity; which would more sensibly make out the Epithite of the Heathens, and the expression of the sonne of Syrach. Very beautifull is the Rainbow, it compasseth the heaven about with a glorious circle, and the hands of the most High have bended it.

Thaumantias.

CHAP. V.

Of Sem, Ham, and Japhet.

Concerning the three sons of Noah, Sem, Ham and Japhet, that the order of their nativity was according to that of numeration, and Japhet the youngest son, as most beleeve, as Austin and others account, the sons of Japhet and Europeans need not grant; nor will it so well concord unto the letter of the Text, and its readiest Interpretations. For so is it said in our Translation, Sem the father of all the sons of Heber, the brother of Japhet the elder; so by the Septuagint, and so by that of Tremellius. And therefore when the Vulgar reads it, *Fratre Japhet majore*, the mistake as Junius observeth, might be committed by neglect of the Hebrew accent; which occasioned Jerom so to render it, and many after to beleeve it. Nor is that argument contemptible which is deduced from their Chronology; for probable it is that Noah had none of them before, and begat them from that year when it is said he was five hundred years old and begat Sem, Ham and Japhet. Again, it is said he was six hundred years old at the flood, and that two years after Sem was but a hundred; therefore Sem must be born when Noah was five hundred and two, and some other before in the year of five hundred and one.

Now whereas the Scripture affordeth the priority of order unto Sem, we cannot from thence inferre his primogeniture. For in Sem the holy line was continued; and therefore however born, his genealogy was most remarkable. So is it not unusuall in holy Scripture to nominate the younger before the elder; so is it said, That Tarah begat Abraham, Nachor and Haram; whereas Haram was the eldest. So Rebecca is termed the mother of Jacob and Esau. Nor is it strange the younger should be first in nomination, who have commonly had the priority in the blessings of God, and been first in his benediction. So Abel was accepted before Cain, Abraham the younger preferred before Ishmael the elder, Jacob before Esau, Joseph was the youngest of twelve, and David the eleventh sonne, and but the caddet of Jesse.

Lastly, Though Japhet were not elder then Sem, yet must we not affirm that he was younger then Cham; for it is plainly delivered, that after Sem and Japhet had covered Noah, he awaked, and knew what his youngest sonne had done unto him, *ὁ δὲ νεώτερος*, is the expression of the Septuagint, *Filius minor* of Jerome, and *minimus* of Tremellius. And upon these grounds perhaps Josephus doth vary from the Scripture enumeration, and nameth them Sem, Japhet and Cham; which is also observed by the Annian Berosus; *Noah cum tribus filiis, Semo, Japeto, Chem*. And therefore although in the priority of Sem and Japhet, there may be some difficulty, though Cyril, Epiphanius and Austin have accounted Sem the elder, and Salian the Annalist, and Petavius the Chronologist contend for the same; yet Cham is more plainly and confessedly named the youngest in the Text.

And this is more conformable unto the Pagan history and Gentile account hereof, unto whom Noah was Saturn, whose symbol was a ship, as relating unto the Ark, and who is said to have divided the world between his three sons. Ham is conceived to be Jupiter, who was the youngest sonne; worshipped by the name of Hamon, which was the Egyptian and African name for Jupiter, who is said to have cut off the genitals of his father, derived

R r

from

Gen. 11.
Gen. 28.

In divine benedictions the younger often preferred.

That Noah and Saturn were the same person.

Gen. 9. 22.
Reading *Vei-*
aggod & ab-
scidit for Vai-
eggod & nun-
ciavit.
Bochartus de
de Geographiâ
sacrâ.

from the historie of Ham, who beheld the nakednesse of his, and by no hard mistake might be confirmed from the Text, as Bochartus hath well observed.

CHAP. VI.

That the Tower of Babel was erected against a second Deluge.

AN opinion there is of some generality, that our fathers after the flood attempted the Tower of Babel to secure themselves against a second Deluge. Which however affirmed by Josephus and others, hath seemed improbable unto many who have discoursed hereon. For (beside that they could not be ignorant of the promise of God never to drown the world again, and had the Rainbow before their eyes to put them in minde thereof) it is improbable from the nature of the Deluge; which being not possibly causable from naturall showres above, or watery eruptions below, but requiring a supernaturall hand, and such as all acknowledge irresistible; we must disparage their knowledge and judgement in so succelesse attempts.

Again, They must probably hear, and some might know, that the waters of the flood ascended fifteen cubits above the highest mountains. Now, if as some define, the perpendicular altitude of the highest mountains be four miles; or as others but fifteen furlongs; it is not easily conceived how such a structure could be effected. Although we allowed the description of Herodotus concerning the Tower of Belus; whose lowest story was in height and bredth one furlong, and seven more built upon it, abating that of the Annian Berofus, the traditionall relation of Jerome, and fabulous account of the Jews. Probable it is that what they attempted was feasible, otherwise they had been amply fool'd in the fruitlesse succeffe of their labours; nor needed God to have hindered them, saying, Nothing will be restrained from them, which they begin to doe.

It was improbable from the place, that is a plain in the land of Shinar. And if the situation of Babylon were such at first as it was in the daies of Herodotus; it was rather a seat of amenity and pleasure, then conducing unto this intention. It being in a very great plain, and so improper a place to provide against a generall Deluge by Towers and eminent structures, that they were faine to make provisions against particular and annuall inundations by ditches and trenches, after the manner of Ægypt. And therefore Sir Walter Raleigh accordingly objecteth; If the Nations which followed Nimrod, still doubted the surprize of a second flood, according to the opinions of the ancient Hebrews, it foundeth ill to the ear of Reason, that they would have spent many years in that low and overflown valley of Mesopotamia. And therefore in this situation, they chose a place more likely to have secured them from the worlds destruction by fire, then another Deluge of water; and as Pierius observeth, some have conceived that this was their intention.

Lastly, The reason is delivered in the Text. Let us build us a City and a Tower, whose top may reach unto heaven, and let us make us a name, lest we be scattered abroad upon the whole earth; as we have already began to wander over a part. These were the open ends proposed unto the people; but the secret design of Nimrod, was to settle unto himself a place

of

History of the
world.

of dominion, and rule over the rest of his brethren, as it after succeeded, according to the delivery of the Text, The beginning of his kingdome was Babel.

CHAP. VII.

Of the Mandrakes of Leah.

WE shall not omit the Mandrakes of Leah, according to the History of Genesis. And Reuben went out in the daies of Wheat-harvest and found Mandrakes in the field, and brought them unto his mother Leah; then Rachel said unto Leah, Give me, I pray thee, of thy sons Mandrakes: and she said unto her, Is it a small matter that thou hast taken my husband, and wouldest thou take my sons Mandrakes also? and Rachel said, Therefore he shall lie with thee this night for thy sons Mandrakes. From whence hath arisen a common conceit, that Rachel requested these plants as a medicine of fecundation, or whereby she might become fruitfull. Which notwithstanding is very questionable, and of incertain truth.

For first from the comparison of one Text with another, whether the Mandrakes here mentioned, be the same plant which holds that name with us, there is some cause to doubt; the word is used in another place of Scripture, when the Church inviting her beloved into the fields; among the delightfull fruits of Grapes and Pomegranates, it is said, The Mandrakes give a smell; and at our gates are all manner of pleasant fruits. Now in stead of a smell of delight, our Mandrakes afford a papaverous and unpleasant odour, whether in the leaf or apple, as is discoverable in their simplicity or mixture. The same is also dubious from the different interpretations: for though the Septuagint and Josephus doe render it the Apples of Mandrakes in this Text, yet in the other of the Canticles the Chaldy Paraphrase termeth it Balsame. R. Solomon; as Drusus observeth, conceives it to be that plant the Arabians named Jesemin. Oleaster and Georgius Venetus, the Lilly; and that the word *Dudaim*, may comprehend any plant that hath a good smell, resembleth a womans breast, and flourisheth in wheat harvest. Junius and Tremellius interpret the same for any amiable flowers of a pleasant and delightfull odour: but the Geneva Translators have been more wary then any; for although they retain the word Mandrake in the Text, they in effect retract it in the Margine; wherein is set down, The word in the originall is *Dudaim*, which is a kinde of fruit or flower unknown.

Nor shall we wonder at the dissent of exposition, and difficulty of definition concerning this Text, if we perpend how variously the vegetables of Scripture are expounded, and how hard it is in many places to make out the species determined. Thus are we at variance concerning the plant that covered Jonas; which though the Septuagint doth render Colocynthis, the Spanish Calabaca, and ours accordingly a Gourd, yet the vulgar translates it Hedera or Ivy; and, as Grotius observeth, Jerome thus translated it, not as the same plant, but best apprehended thereby. The Italian of Diodati and that of Tremellius have named it Ricinus, and so hath ours in the Margine; for *palma Christi* is the same with Ricinus. The Geneva Translators have herein been also circumspect; for they have retained the originall word *Kikaion*, and ours hath also affixed the same unto the Margine.

Nor are they indeed alwaies the same plants which are delivered under the

See the Exposition of this place
for foundation of this word.

Cant. 7.

The vegetables in
H. Scripture how
variously expound-
ed.

same name, and appellations commonly received amongst us. So when it is said of Solomon, that he writ of plants from the Cedar of Lebanon, unto the Hysop that groweth upon the wall, that is, from the greatest unto the smallest, it cannot be well conceived our common Hysop; for neither is that the least of vegetables, nor observed to grow upon wals; but rather as Lemnius well conceiveth some kinde of the capillaries, which are very small plants and only grow upon wals and stony places. Nor are the four species in the holy oyntment, Cinnamon, Myrrhe, Calamus and Cassia, nor the other in the holy perfume, Frankincense, Stacte, Onycha and Galbanum, so agreeably expounded unto those in use with us, as not to leave considerable doubts behinde them. Nor must that perhaps be taken for a simple unguent, which Matthew only termeth a pretious oyntment; but rather a composition, as Mark and John imply by pistick Nard, that is faithfully dispensed; and as Mathiolus observeth in his Epistles, may be that famous composition described by Dioscorides, made of oyle of Ben, Malabathrum, Juncus Odoratus, Costus, Amomum, Myrrhe, Balsam and Nard; which Galen affirmeth to have been in use with the delicate Dames of Rome; and that the best thereof was made at Laodicea, from whence by Merchants it was conveyed unto other parts. But how to make out that Translation concerning the Tithe of Mint, Anise and Cumin, we are still to seek; for we finde not a word in the Text that can properly be rendred Anise; the Greek being *ἀνδύς*, which the Latines call *Anethum*, and is properly Englished Dill. Lastly, What meteor that was, that fed the Israelites so many years, they must rise again to inform us. Nor doe they make it out, who will have it the same with our Manna; nor will any one kinde thereof, or hardly all kindes we reade of, be able to answer the qualities thereof, delivered in the Scripture; that is, to fall upon the ground, to breed wormes, to melt with the Sunne, to taste like fresh oyle, to be grounded in Mils, to be like Coriander seed, and of the colour of Bdellium.

V. Dostissimum
Chrysostom
Magnenum de
Manna.

Again, It is not deducible from the Text or concurrent sentence of Comments, that Rachel had any such intention, and most doe rest in the determination of Austine, that she desired them for rarity, pulchritude or suavity. Nor is it probable she would have resigned her bed unto Leah, when at the same time she had obtained a medicine to fructifie her self; and therefore Drusius who hath expressely and favourably treated hereof, is so farre from conceding this intention, that he plainly concludeth, *Hoc quo modo illis in mentem venerit conjicere nequeo*; how this conceit fell into mens mindes it cannot fall into mine; for the Scripture delivereth it not, nor can it be clearly deduced from the Text.

Thirdly, If Rachel had any such intention, yet had they no such effect, for she conceived not many years after of Joseph; whereas in the mean time Leah had three children, Isachar, Zabulon and Dinah.

Lastly, Although at that time they failed of this effect, yet is it mainly questionable whether they had any such vertue either in the opinions of those times or in their proper nature. That the opinion was popular in the land of Canaan it is improbable, and had Leah understood thus much she would not surely have parted with fruits of such a faculty; especially unto Rachel who was no friend unto her. As for its proper nature, the Ancients have generally esteemed it Narcotick or stupefactive, and is to be found in the list of poyson set down by Dioscorides, Galen, Aetius, Aegineta, and severall Antidotes delivered by them against it. It was I confesse from good Antiquity, and in the daies of Theophrastus accounted a philtre, or plant that conciliates affection; and so delivered by Dioscorides. And this

this intent might seem more probable, had they not been the wives of holy Jacob, had Rachel presented them unto him, and not requested them for herself.

Now what Dioscorides affirmeth in favour of this effect, that the grains of the Apples of Mandrakes mundifie the Matrix, and applied with sulphur stop the fluxes of women, he overthrows by qualities destructive unto conception; affirming also that the juice thereof purgeth upward like Hellebore; and applied in pessaries provokes the menstruous flowes and procures abortion. Petrus Hispanus, or Pope John the twentieth speaks more directly in his *Thesaurus Pauperum*; wherein among the receipts of fecundation, he experimentally commendeth the wine of Mandrakes given with *Triphera magna*. But the soul of the medicine may lie in *Triphera magna*; an excellent composition, and for this effect commended by Nicolaus. And whereas Levinus Lemnius that eminent Physitian doth also concede this effect, it is from manifest causes and qualities elementall occasionally producing the same; for he imputeth the same unto the coldnesse of that simple, and is of opinion that in hot climates, and where the uterine parts exceed in heat, by the coldnesse hereof they may be reduced into a conceptive constitution, and Crasis accommodable unto generation; whereby indeed we will not deny the due and frequent use may proceed unto some effect; from whence notwithstanding we cannot inferre a fertilizing condition or property of fecundation. For in this way all vegetables doe make fruitfull according unto the complexion of the Matrix; if that excell in heat, plants exceeding in cold doe rectifie it; if it be cold, simples that are hot reduce it; if dry moist, if moist dry correct it; in which division all plants are comprehended. But to distinguish thus much is a point of Art, and beyond the method of Rachels or feminine Physick. Again, whereas it may be thought that Mandrakes may fecundate since Poppy hath obtained the Epithite of fruitfull, and that fertility was hieroglyphically described by Venus with an head of Poppy in her hand; the reason hereof, was the multitude of seed within it self, and no such multiplying in humane generation. And lastly, whereas they may seem to have this quality, since Opium it self is conceived to extimulate unto venery, and for that intent is sometimes used by Turkes, Persians, and most orientall Nations; although Winclerus doth seem to favour the conceit, yet Amatus Lusitanus, and Rodericus a Castro are against it; Garcias ab Horto refutes it from experiment; and they speak probably who affirm the intent and effect of eating Opium, is not so much to invigorate themselves in coition, as to prolong the Act, and spin out the motions of carnality.

rubidines for fecundation.

Opium, of what effect in venery.

CHAP. VIII.

Of the three Kings of Collein.

A Common conceit there is of the three Kings of Collein, conceived to be the wise men that travelled unto our Saviour by the direction of the Starre. Wherein (omitting the large Discourses of Baronius, Pineda and Montacutius) that they might be Kings, beside the ancient Tradition and authority of many Fathers, the Scripture also implieth. The Gentiles shall come to thy light, and Kings to the brightnesse of thy rising. The Kings of Tharsis and the Isles, the Kings of Arabia and Saba shall offer gifts; which

Pined. *Monarchia Ecclesiastica* or general history, a large and Learned work. Spanisb

The Magi or wise
men (Matth. 2.)
what manner of
Kings they were.

Gaspar fert
myrrham, &c.

And why of Col-
lein.

places most Christians and many Rabbins interpret of the Messiah. Not that they are to be conceived potent Monarchs, or mighty Kings; but Towns, Kings of Cities or narrow Territories; such as were the Kings of Sodome and Gomorrah, the Kings of Jericho and Ai, the one and thirty which Joshua subdued, and such as some conceive the friends of Job to have been.

But although we grant they were Kings, yet can we not be assured they were three. For the Scripture maketh no mention of any number; and the number of their presents, Gold, Myrrh and Frankincense, concludeth not the number of their persons; for these were the commodities of their Country, and such as probably the Queen of Sheba in one person had brought before unto Solomon. So did not the sons of Jacob divide the present unto Joseph, but are conceived to carry one for them all, according to the expression of their father; Take of the best fruits of the land in your vessels, and carry down the man a present. And therefore their number being uncertain, what credit is to be given unto their names, Gaspar, Melchior, Balthazar, what to the charm thereof against the falling sicknesse, or what unto their habits, complexions, and corporall accidents, we must rely on their uncertain story, and received portraits of Collein.

Lastly, Although we grant them Kings, and three in number, yet could we not conceive that they were Kings of Collein. For though Collein were the chief City of the *Ubii*, then called *Ubiopolis*, and afterwards *Agrippina*, yet will no history inform us there were three Kings thereof. Beside, these being rulers in their Countries, and returning home, would have probably converted their subjects; but according unto Munster, their conversion was not wrought untill seventy years after by Maternus a disciple of Peter. And lastly, it is said that the wise men came from the East; but Collein is seated West-ward from Jerusalem; for Collein hath of longitude thirty four degrees; but Jerusalem seventy two.

The ground of all was this. These wise men or Kings, were probably of Arabia, and descended from Abraham by Keturah, who apprehending the mystery of this Starre, either by the Spirit of God, the prophesie of Balaam, the prophesie, which Suetonius mentions, received and constantly beleaved through all the East, that out of Jury one should come that should rule the whole world; or the divulged expectancy of the Jews from the expiring prediction of Daniel; were by the same conducted unto Judea, returned into their Country, and were after baptised by Thomas. From whence about three hundred years after, by Helena the Empreffe their bodies were translated to Constantinople, From thence by Eustathius unto Millane, and at last by Renatus the Bishop unto Collein; where they are beleaved at present to remain, their monuments shown unto strangers, and having lost their Arabian titles, are crowned Kings of Collein.

CHAP. IX.

Of the food of John Baptist, Locusts and wilde honey.

Concerning the food of John Baptist in the wildernesse, Locusts and wilde honey, lest popular opiniatry should arise, we will deliver the chief opinions. The first conceiveth the Locusts here mentioned to be that fruit the Greeks name *κρηττον*, mentioned by Luke in the diet of the Prodigall son, the

the Latines *Siliqua*, and some, *Panis Sancti Johannis*; included in a broad Cod, and indeed of taste almost as pleasant as honey. But this opinion doth not so truly impugn that of the Locusts; and might rather call into controverſie the meaning of wilde honey.

The ſecond affirmeth they were the tops or tender crops of trees; for ſo Locuſta alſo ſignifyeth; which conceit is plauſible in Latine, but will not hold in Greek, wherein the word is *ἀνελ*; except for *ἀνελδες*, we read *ἀνελδρῶν*, or *ἀνελμῶν*, which ſignifie the extremities of trees; of which belief have divers been; more confidently Iſidore Peluſiota, who in his Epistles plainly affirmeth they think unlearnedly who are of another belief. And this ſo wrought upon Baronius that he concludeth in neutrality; *Hec cum ſcribat Iſidorus deſaiendum nobis non eſt, & totam relinquitur lectoris arbitrio; nam conſtat Grecam dictionem ἀνελδες, & Locuſtam, inſecti genus, & arborum ſummities ſignificare. Sed fallitur, ſaith Montacutius, nam conſtat contrarium, ἀνελδα apud nullum authorem clauſicum ἀνελδρῶν ſignificare.* But above all Paracellus with moſt animoſity promoteth this opinion, and in his book *de melle*, ſpareth not his friend Eraſmus. *Hec à nonnullis ita explicatur ut dicant Locuſtas aut cicadas Johanni pro cibo fuiſſe; ſed hi ſtultitiam diſſimulare non poſſunt, veluti Jeronimus, Eraſmus, & alij Prophete Neoterici in Latinitate immortui.*

Opinions concerning *ἀνελδες*; or the Locuſts of S. John Baptiſt.

A third affirmeth that they were properly Locuſts; that is, a ſheath-winged and ſix-footed inſect, ſuch as is our Graſshopper. And this opinion ſeems more probable then the other. For beſide the authority of Origen, Jerome, Chryſoſtome, Hillary and Ambroſe to confirm it; this is the proper ſignification of the word, thus uſed in Scripture by the Septuagint, Greek vocabularies thus expound it; Suidas on the word *ἀνελ* obſerves it to be that animal whereon the Baptiſt fed in the deſert; in this ſenſe the word is uſed by Ariſtotle, Dioſcorides, Galen, and ſeverall humane Authours. And laſtly, there is no abſurdity in this interpretation, or any ſolid reaſon why we ſhould decline it, it being a food permitted unto the Jews, whereof four kinds are reckoned up among clean meats. Beſide, not only the Jews, but many other Nations long before and ſince, have made an uſuall food thereof. That the *Æthiopians*, *Mautitanians* and *Arabians* did commonly eat them, is teſtified by Diodorus, Strabo, Solinus, *Ælian* and Pliny; that they ſtill feed on them is confirmed by Leo, Cadamuſtus and others. John therefore as our Saviour ſaith, came neither eating nor drinking; that is far from the diet of Jeruſalem and other riotous places; but ſared courſely and poorly according unto the apparell he wore, that is of Camels hair; the place of his abode, the wilderneſſe; and the doctrine he preached, humiliation and repentance.

The more probable what,

CHAP. X.

That John the Evangelist ſhould not die.

THE conceit of the long-living or rather not dying John the Evangelist is not to be omitted; and although it ſeem inconfiderable, and not much weightier then that of Joſeph the wandering Jew; yet being deduced from Scripture, and abetted by Authours of all times, it ſhall not eſcape our enquiry. It is drawn from the ſpeech of our Saviour unto Peter after the prediction of his Martyrdome; Peter ſaith unto Jeſus, Lord, and what ſhall this man

pag. 9.

Joh. 21.

man do? Jesus saith unto him, If I will that he tarry until I come, what is that to thee? follow thou me; then went this saying abroad among the brethren that this disciple should not die.

12.

Now the apprehension hereof hath been received either grossely and in the generall, that is, not distinguishing the manner or particular way of this continuation, in which sense probably the grosser and undiscerning party received it. Or more distinctly apprehending the manner of his immortality; that is, that John should never properly die, but be translated into Paradise, there to remain with Enoch and Elias until about the coming of Christ; and should be slain with them under Antichrist, according to that of the Apocalyps. I will give power unto my two witnesses, and they shall prophesie a thousand two hundred and threescore daies cloathed in sackcloth, and when they shall have finished their Testimony, the beast that ascendeth out of the bottomlesse pit, shall make war against them, and shall overcome them and kill them. Hereof, as Baronius observeth, within three hundred years after Christ, Hippolytus the Martyr was the first assertor, but hath been maintained by many since; by Metaphrastes, by Freculphus; but especially by Georgius Trapezuntius, who hath expressly treated upon this Text, and although he lived but in the last Century, did still affirm that John was not yet dead.

As for the grosse opinion that he should not die, it is sufficiently refuted by that which first occasioned it, that is the Scripture it self, and no further off, then the very subsequent verse: Yet Jesus said not unto him he should not die, but if I will that he tarry till I come, what is that to thee? and this was written by John himself whom the opinion concerned; and as is conceived many years after when Peter had suffered and fulfilled the prophecy of Christ.

The death of St
John Evangelist,
where and when.

For the particular conceit, the foundation is weak, nor can it be made out from the Text alledged in the Apocalyps: for beside that therein two persons are only named, no mention is made of John a third Actor in this Tragedy. The same is overthrown by History, which recordeth not only the death of John, but assigneth the place of his buriall, that is Ephesus a city in Asia minor; whither after he had been banished into Patmos by Domitian, he returned in the reign of Nerva, there deceased, and was buried in the daies of Trajan. And this is testified by Jerome *de Scriptoribus Ecclesiasticis*, by Tertullian *de Anima*, by Chrysostome, and by Eusebius, in whose daies his Sepulchre was to be seen; and by a more ancient Testimony alledged also by him, that is of Polycrates Bishop of Ephesus, not many successions after John; whose words are these in an Epistle unto Victor Bishop of Rome, *Johannes ille qui supra pectus Domini recumbebat, Doctor optimus, apud Ephesum dormivit*; many of the like nature are noted by Baronius, Jansenius, Estius, Lipellous and others.

Now the main and primitive ground of this error, was a grosse mistake in the words of Christ, and a false apprehension of his meaning; understanding that positively which was but conditionally expressed, or receiving that affirmatively which was but concessively delivered. For the words of our Saviour run in a doubtfull strain, rather reprehending then satisfying the curiosity of Peter; as though he should have said, Thou hast thine own doom, why enquirest thou after thy brothers? what relief unto thy affliction will be the society of anothers? why pryest thou into the secrets of Gods judgments? if he stay until I come, what concerneth it thee who shalt be sure to suffer before that time? and such an answer probably he returned because he foreknew John should not suffer a violent death, but go unto his grave
in

in peace. Which had Peter assuredly known, it might have cast some water on his flames, and smothered those fires which kindled after unto the honour of his Master.

Now why among all the rest John only escaped the death of a Martyr, the reason is given; because all other fled away or withdrew themselves at his death, and he alone of the Twelve beheld his passion on the Crosse. Wherein notwithstanding, the affliction that he suffered could not amount unto lesse then Martyrdome: for if the naked relation, at least the intente consideration of that passion, be able still and at this disadvantage of time, to rend the hearts of pious contemplators; surely the near and sensible vision thereof must needs occasion agonies beyond the comprehension of flesh; and the trajections of such an object more sharply pierce the martyr'd soul of John, then afterward did the nayls the crucified body of Peter.

Of all the Apostles S. Iohn only is thought to have suffered a naturall death. And why?

Again, They were mistaken in the Emphaticall apprehension, placing the consideration upon the words, *If I will*, whereas it properly lay in these, when I come. Which had they apprehended as some have since, that is, not for his ultimate and last return, but his coming in judgement and destruction upon the Jews; or such a coming as it might be said, that that generation should not passe before it was fulfilled: they needed not, much lesse need we suppose such diurnity. For after the death of Peter, John lived to behold the same fulfilled by Vespasian: nor had he then his *Nunc dimittis*, or went out like unto Simeon; but old in accomplit obsecurities, and having seen the expire of Daniels prediction, as some conceive, he accomplished his Revelation.

But besides this original and primary foundation, divers others have made impressions according unto different ages and persons by whom they were received. For some established the conceit in the disciples and brethren, which were contemporary unto him, or lived about the same time with him; and this was first the extraordinary affection our Saviour bare unto this disciple, who hath the honour to be called the disciple whom Jesus loved. Now from hence they might be apt to believe their Master would dispense with his death, or suffer him to live to see him return in glory, who was the only Apostle that beheld him to die in dishonour. Another was, the belief and opinion of those times that Christ would suddenly come; for they held not generally the same opinion with their successors, or as descending ages after for many Centuries; but conceived his coming would not be long after his passion, according unto severall expressions of our Saviour grossely understood, and as we finde the same opinion not long after reprehended by S. Paul: and thus conceiving his coming would not be long, they might be induced to believe his favorite should live unto it. Lastly, the long life of John might much advantage this opinion; for he survived the other Twelve, he was aged 22 years when he was called by Christ, and 25 that is the age of Priesthood at his death, and lived 93 years, that is 68 after his Saviour, and died not before the second year of Trajane. Now having outlived all his fellows, the world was confirmed he might live still, and even unto the coming of his Master.

Theff. 2.

S. Iohn how long surviving our B. Saviour.

The grounds which promoted it in succeeding ages, were especially two. The first his escape of martyrdom: for whereas all the rest suffered some kinde of forcible death, we have no history that he suffered any; and men might think he was not capable thereof. For as History hath related, by the command of Domitian he was cast into a Caldron of burning oyl, and came out again unsinged. Now future ages apprehending he suffered no violent death, and

finding also the means that tended thereto could take no place, they might be confirmed in their opinion that death had no power over him, and easily beleieve he might live alwaies who could not be destroyed by fire, and resist the fury of that element which nothing shall resist. The second was a corruption crept into the Latine Text, reading for *Si*, *Sic cum manere volo*; whereby the answer of our Saviour becometh positive, or that he will have it so; which way of reading was much received in former ages, and is still retained in the vulgar Translation; but in the Greek and originall, the word is *ἰὰ*, signifying *Si* or if, which is very different from *ἕως*, and cannot be translated for it: and answerable hereunto is the translation of Junius and Tremellius, and that also annexed unto the Greek by the authority of *Sixtus quintus*.

The third confirmed it in ages farther descending, and proved a powerfull argument unto all others following; that in his tomb at Ephesus there was no corps or relique thereof to be found; whereupon arised divers doubts, and many suspicious conceptions; some beleiving he was not buried, some that he was buried but risen again, others that he descended alive into his tomb, and from thence departed after, But all these proceeded upon unveritable grounds, as Baronius hath observed; who alledgeth a letter of Celestine Bishop of Rome, unto the Councel of Ephesus, wherein he declareth the reliques of John were highly honoured by that City; and a passage also of Chrysostome in the Homilies of the Apostles, That John being dead did cures in Ephesus, as though he were still alive. And so I observe that Esthius discussing this point concludeth hereupon, *Quod corpus ejus nunquam reperitur, hoc non dicerent si veterum scripta diligenter per-lustrassent*.

Now that the first ages after Christ, those succeeding, or any other should proceed into opinions so far divided from reason, as to think of immortality after the fall of Adam, or conceit a man in these later times should out-live our fathers in the first; although it seem very strange, yet is it not incredible. For the credulity of men hath been deluded into the like conceits; and as Ireneus and Tertullian mention, one Menander a Samaritan obtained belief in this very point; whose doctrine it was that death should have no power on his disciples, and such as received his baptism should receive immortality therewith. 'Twas surely an apprehension very strange; nor usually falling either from the absurdities of Melancholy or vanities of ambition. Some indeed have been so affectedly vain as to counterfeit Immortality, and have stolen their death in a hope to be esteemed immortall; and others have conceived themselves dead: but surely few or none have fallen upon so bold an error, as not to think that they could die at all. The reason of those mighty ones, whose ambition could suffer them to be called gods, would never be flattered into immortality; but the proudest thereof have by the daily dictates of corruption convinced the impropriety of that appellation. And surely, although delusion may run high, and possible it is that for a while a man may forget his nature, yet cannot this be durable; for the inconcealable imperfections of our selves, or their daily examples in others, will hourly prompt us our corruption, and loudly tell us we are the sons of earth.

CHAP. XI.

More compendiously of some others.

MAny others there are which we resign unto Divinity, and perhaps deserve not controversie. Whether David were punished only for pride of heart in numbring the people, as most doe hold, or whether as Josephus and many maintain, he suffered also for not performing the commandment of God concerning capitation; that when the people were numbred, for every head they should pay unto God a shekell, we shall not here contend. Surely, if it were not the occasion of this plague, we must acknowledge the omission thereof was threatned with that punishment, according to the words of the Law. When thou takest the summe of the children of Israel, then shall they give every man a rancome for his soul unto the Lord, that there be no plague amongst them. Now, how deeply hereby God was defrauded in the time of David, and opulent State of Israel, will easily appear by the summes of former lustrations. For in the first, the silver of them that were numbred was an hundred Talents, and a thousand seven hundred three-score and fifteen shekels; a Bekah for every man, that is, half a shekel, after the shekel of the Sanctuary; for every one from twenty years old and upwards, for six hundred thousand, and three thousand and five hundred and fifty men. Answerable whereto we reade in Josephus, Vespasian ordered that every man of the Jews should bring into the Capitoll two dragmes; which amounts unto fifteen pence, or a quarter of an ounce of silver with us; and is equivalent unto a Bekah, or half a shekel of the Sanctuary. For, an Attick dragme is seven pence half-peny, or a quarter of a shekel, and a didrachmum or double dragme, is the word used for Tribute money, or half a shekel; and a stater the money found in the fishes mouth was two Didrachmums, or an whole shekel, and tribute sufficient for our Saviour and for Peter.

Exod. 30.

Exod. 38.

What the Attick
dragme is.
What the di-
drachmum,
and the stater,
Matth 17 27.

We will not question the Metamorphosis of Lots wife, or whether she were transformed into a reall statua of Salt: though some conceive that expression Metaphoricall, and no more thereby then a lasting and durable columne; according to the nature of Salt, which admitteth no corruption; in which sense the Covenant of God is termed a Covenant of Salt; and it is also said, God gave the kingdome unto David for ever, or by a Covenant of Salt.

That Absalom was hanged by the hair of the head, and not caught up by the neck, as Josephus conceiveth, and the common argument against long hair affirmeth, we are not ready to deny. Although I confesse a great and learned party there are of another opinion; although if he had his Morion or Helmet on, I could not well conceive it; although the Translation of Jerome or Tremellius doe not prove it, and our own seems rather to overthrow it.

That Judas hanged himself, much more, that he perished thereby, we shall not raise a doubt. Although Jansenius discoursing the point, produceth the testimony of Theophylact and Euthymius, that he died not by the Gallows, but under a Cart wheele; and Baronius also delivereth this was the opinion of the Greeks; and derived as high as Papias, one of the Disciples of John; although how hardly the expression of Matthew is reconcilable unto that of Peter, and that he plainly hanged himself, with that that

Lut. 23. 47. 82. 9

How Judas might
die,

Strangulat in-
clusus dolor.

falling headlong he burst asunder in the midst, with many other, the learned Grotius plainly doth acknowledge. And lastly, although as he also urgeth, the word ἀπὸ γάλο in Matthew, doth not only signifie suspension, or pendulous illaqueation, as the common picture describeth it, but also suffocation, strangulation or interception of breath; which may arise from grief, despair, and deep dejection of spirit, in which sense it is used in the history of Tobit concerning Sara, ἐλυπᾶθη σφόδρα ὥστε ἀπὸ γάλλου. *Ita tristata est ut strangulatione premeretur*, saith Junius; and so might it happen from the horror of minde unto Judas. So doe many of the Hebrews affirm, that Achitophel was also strangled, that is, not from the rope, but passion. For the Hebrew and Arabick word in the Text not only signifies suspension, but indignation, as Grotius hath also observed.

Many more there are of indifferent truths, whose dubious expositions worthy Divines and Preachers doe often draw into wholesome and sober uses, whereof we shall not speak; with industry we decline such paradoxes; and peaceably submit unto their received acceptions.

CHAP. XII.

Of the cessation of Oracles.

bid. Gal. 3. 30.

THat Oracles ceased or grew mute at the coming of Christ, is best understood in a qualified sense and not without all latitude; as though precisely there were none after, nor any decay before. For (what we must confesse unto relations of Antiquity) some pre-decay is observable from that of Cicero urged by Baronius; *Cur isto modo jam oracula Delphis non eduntur, non modo nostra etate, sed jam diu, ut nihil possit esse contemptius*. That during his life they were not altogether dumb, is deduceable from Suetonius in the life of Tiberius, who attempting to subvert the Oracles adjoining unto Rome, was deterred by the Lots or Chances which were delivered at Preneste. After his death we meet with many; Suetonius reports, that the Oracle of Autium forewarned Caligula to beware of Cassius, who was one that conspired his death. Plutarch enquiring why the Oracles of Greece ceased, excepteth that of Lebadia; and in the same place Demetrius affirmeth the Oracles of Mopsus and Amphiloehus were much frequented in his daies. In brief, histories are frequent in examples, and there want not some even to the reign of Julian.

What therefore may consist with history; by cessation of Oracles with Montacutius we may understand their intercision, not abscission or consummate desolation; their rare delivery, not totall dereliction: and yet in regard of divers Oracles, we may speak strictly, and say there was a proper Cessation. Thus may we reconcile the accounts of times, and allow those few and broken Divinations, whereof we reade in story and undeniable Authors. For that they received this blow from Christ, and no other causes alledged by the Heathens; from oraculous confession they cannot deny; whereof upon record there are some very remarkable. The first that Oracle of Delphos delivered unto Augustus.

*Me puer Hebraeus Divos Deus ipse gubernans
Cedere sede jubet, tristemq; redire sub orcum;
Aris ergo dehinc tacitus discedito nostris.*

An

An Hebrew childe, a God all gods excelling,
To hell again commands me from this dwelling.
Our Altars leave in silence, and no more
A resolution e're from hence implore.

A second recorded by Plutarch, of a voice that was heard to cry unto Mariners at the Sea, *Great Pan is dead*; which is a relation very remarkable, and may be read in his defect of Oracles. A third reported by Eusebius in the life of his magnified Constantine; that about that time Apollo mourned, declaring his Oracles were false, and that the righteous upon earth did hinder him from speaking truth. And a fourth related by Theodoret, and delivered by Apollo Daphne unto Julian, upon his Persian Expedition, that he should remove the bodies about him, before he could return an answer, and not long after his Temple was burnt with Lightning.

All which were evident and convincing acknowledgements of that power which shut his lips; and restrained that delusion which had reigned so many Centuries. But as his malice is vigilant, and the finnes of men doe still continue a toleration of his mischiefs, he resteth not, nor will he ever cease to circumvent the sonnes of the first deceived; and therefore expelled his Oracles and solemn Temples of delusion, he runnes into corners, exercising minor trumperies, and acting his deceits in Witches, Magicians, Diviners, and such inferiour seducers. And yet (what is deplorable) while we apply our selves thereto, and affirming that God hath left to speak by his Prophets, expect in doubtfull matters a resolution from such spirits; while we say the devil is mute, yet confesse that these can speak; while we deny the substance, yet practise the effect; and in the denied solemnity maintain the equivalent efficacy; in vain we cry that Oracles are down; Apollo's altar still doth smoke; nor is the fire of Delphos out unto this day.

The devils retreat,
when expelled the
Oracles.

Impertinent it is unto our intention to speak in generall of Oracles, and many have well performed it. The plainest of others was that recorded by Herodotus and delivered unto Cræsus; who as a triall of his omniscience sent unto distant Oracles; and so contrived with the messengers, that though in severall places, yet at the same time they should demand what Cræsus was then a doing. Among all others the Oracle of Delphos only hit it; returning answer, he was boyling a Lamb with a Tortoyse, in a brazen vessell with a cover of the same metall. The stile is haughty in Greek, though somewhat lower in Latine,

*Æquoris est spatium & numerus mihi notus arena,
Mutum percipio, fantis nihil audio vocem.
Venit ad hos sensus nidor testudinis aeris,
Que semel agnina coquitur cum carne labete,
Aere infra strato, & stratum cui desuper as est.*

I know the space of Sea, the number of the sand,
I hear the silent, mute I understand.
A tender Lamb joyned with Tortoise flesh,
Thy Master King of Lydia now doth dresse.
The sent thereof doth in my nostrils hover
From brazen pot closed with brazen cover.

Hereby indeed he acquired much wealth and more honour, and was reputed by Cræsus as a Diety: and yet not long after, by a vulgar fallacy he deceived his favourite and greatest friend of Oracles into an irreparable overthrow by Cyrus. And surely the same successe are likely all to have that rely or

depend upon him; 'twas the first play he practis'd on mortality, and as time hath reddred him more perfect in the Art, so hath the inveteratenesse of his malice more ready in the execution. 'Tis therefore the sovereign degree of folly, and a crime not only against God, but also our own reasons, to expect a favour from the devil, whose mercies are more cruell then those of Polyphemus; for he devours his favourites first, and the nearer a man approacheth, the sooner he is scorched by Moloch. In brief, his favours are deceitfull and double-headed, he doth apparent good, for reall and convincing evil after it; and exalteth us up to the top of the Temple, but to humble us down from it.

CHAP. XIII.

Of the death of Aristotle.

THAT Aristotle drowned himself in Euripus as despairing to resolve the cause of its reciprocation, or ebbe and flow seven times a day, with this determination, *Si quidem ego non capio te, tu capies me*, was the assertion of Procopius, Nazianzen, Justine Martyr, and is generally beleev'd amongst us. Wherein, because we perceive men have but an imperfect knowledge, some conceiving Euripus to be a River, others not knowing where or in what part to place it, we first advertise, it generally signifieth any strait, fret, or channell of the Sea, running between two shoares, as Jukus Pollux hath defined it; as we reade of Euripus Hellespontiacus, Pyrrhaus, and this whereof we treat, Euripus Euboicus or Chalcidicus; that is, a narrow passage of Sea dividing Attica and the Island of Eubæa, now called *Golfo de Negroponte*, from the name of the Island and chief City thereof, famous in the warres of Antiochus, and taken from the Venetians by Mahomet the great.

What an Euripus
is generally.

Now that in this Euripe or fret of Negropont, and upon the occasion mentioned, Aristotle drowned himself, as many affirm, and almost all beleev'e, we have some room to doubt. For without any mention of this, we finde two waies delivered of his death by Diogenes Laertius, who expressly treateth thereof, the one from Eumolus and Phavorinus, that being accused of impiety for composing an Hymne unto Hermias (upon whose Concubine he begat his sonne Nichomachus) he withdrew into Chalcis, where drinking poison he died: the Hymne is extant in Laertius, and the fifteenth book of Athenæus. Another by Apollodorus, that he died at Chalcis of a naturall death and languishment of stomach, in his sixty three, or great Climactericall year; and answerable hereto is the account of Suidas and Censorinus. And if that were cleerly made out, which Rabbi Ben Joseph affirmeth, he found in an Egyptian book of Abraham Sapiens Perizol; that Aristotle acknowledged all that was written in the Law of Moses and became at last a Profelyte; it would also make improbable this received way of his death.

Touching the
death of Aristotle.

Licetus de que-
stis, epist.

Again, Beside the negative of Authority, it is also deniable by reason; nor will it be easie to obtrude such desperate attempts upon Aristotle, from unsatisfaction of reason, who so often acknowledged the imbecillity thereof. Who in matters of difficulty, and such which were not without abstrusities, conceived it sufficient to deliver conjecturalities. And surely he that could sometimes sit down with high improbabilities, that could content himself,

and

and think to satisfie others, that the variegation of Birds was from their living in the Sunne, or erection made by deliberation of the Testicles; would not have been dejected unto death with this. He that was so well acquainted with *ἢ ὄν*, and *πότερ* *utrum*, and *Ἀν* *Quia*, as we observe in the Queries of his Problems; with *ἴσως* and *ἐπὶ το πᾶσι*, *fortasse* and *plerumq*, as is observable through all his Works; had certainly rested with probabilities, and glancing conjectures in this: Nor would his resolutions have ever runne into that mortall Antanaclasis, and desperate piece of Rhetorick, to be compriz'd in that he could not comprehend. Nor is it indeed to be made out he ever endeavoured the particular of Euripus, or so much as to resolve the ebbe and flow of the Sea. For, as Vicomercatus and others observe, he hath made no mention hereof in his Works, although the occasion present it self in his Meteors; wherein he disputeth the affections of the Sea: nor yet in his Problemes, although in the twenty third Section, there be no lesse then one and fourty Queries of the Sea. Some mention there is indeed in a Work of the propriety of Elements, ascribed unto Aristotle; which notwithstanding is not reputed genuine, and was perhaps the same whence this was urged by Plutarch, *De placitis Philosophorum*.

Lastly, The thing it self whereon the opinion dependeth, that is, the variety of the flux and reflux of Euripus, or whether the same do ebbe and flow seven times a day, is not incontrovertible; For though Pomponius Mela, and after him Solinus and Pliny have affirmed it, yet I observe Thucydides; who speaketh often of Eubæa, hath omitted it, Pausanias an ancient Writer, who hath left an exact description of Greece, and in as particular a way as Leandro of Italy, or Cambden of great Britain, describing not only the Countrey Towns, and Rivers, but hills, springs, and houses, hath left no mention hereof. Æschines in Ctesiphon only alludeth unto it; and Strabo that accurate Geographer speaks warily of it, that is, *ὡς φασί*, and as men commonly reported. And so doth also Maginus, *Velocis ac varij fluctus est mare, ubi quater indie, aut septies, ut alij dicunt, reciprocantur aestus*. Botero more plainly, *Il mar cresce e cala con un impeto mirabile quatra volte il di, benchè comunimente si dica sette volte, &c.* This sea with wondrous impetuosity ebberth and floweth four times a day, although it be commonly said seven times, and generally opinion'd, that Aristotle despairing the reason, drown'd himself therein. In which description by four times a day, it exceeds not in number the motion of other Seas, taking the words properly, that is, twice ebbing and twice flowing in four and twenty hours. And is no more then what *Thomaso Porroacchi* affirmeth, in his description of famous Islands, that twice a day it hath such an impetuous floud, as is not without wonder. Livy speaks more particularly, *Haud facile infestior classi statio est & fretum ipsum Euripi, non septies die (sicut fama fert) temporibus certis reciprocatur, sed temere in modum venti, nunc huc nunc illuc versumari, velut monte præcipiti devolutus torrens rapitur*. There is hardly a worse harbour, the fret or channell of Euripus not certainly ebbing or flowing seven times a day, according to common report; but being uncertainly, and in the manner of a winde carried hither and thither, is whirled away as a torrent down a hill. But the experimentall testimony of Gillius is most considerable of any; who having beheld the course thereof, and made enquiry of Millers that dwelt upon its shore, received answer, that it ebbed and flowed four times a day, that is, every six hours, according to the Law of the Ocean; but that indeed sometimes it observed not that certain course. And this irregularity though seldome happening, together with its unruly and tumultuous motion, might afford a beginning unto the common opinion. Thus may the expression in Ctesiphon be made

182. 7.

made out; And by this may Aristotle be interpreted, when in his Problemes he seems to borrow a Metaphor from Euripus: while in the five and twentieth Section he enquireth, why in the upper parts of houses the air doth Euripize, that is, is whirled hither and thither.

Now that which gave life unto the assertion, might be his death at Chalcis, the chief City of Eubæa, and seated upon Euripus, where 'tis confessed by all he ended his daies. That he emaciated and pined away in the too anxious enquiry of its reciprocations, although not drowned therein, as Rhodiginus relateth some conceived, was a half confession thereof not justifiable from Antiquity. Surely the Philosophy of flux and reflux was very imperfect of old among the Greeks and Latines; nor could they hold a sufficient theory thereof, who only observed the Mediterranean, which in some places hath no ebbe, and not much in any part. Nor can we affirm our knowledge is at the height; who have now the Theory of the Ocean and narrow Seas beside. While we referre it unto the Moon, we give some satisfaction for the Ocean, but no generall salve for Creeks, and Seas which know no flood; nor resolve why it flows three or four foot at Venice in the bottome of the Gulf, yet scarce at all at Ancona, Durazzo, or Corcyra, which lie but by the way. And therefore old abstrusities have caused new inventions; and some from the Hypotheses of Copernicus or the Diurnall and annuall motion of the earth, endeavour to salve the flows and motions of these seas, illustrating the same by water in a boal, that rising or falling to either side, according to the motion of the vessell; the conceit is ingenuous, salves some doubts, and is discovered at large by Galilæo in his Systeme of the world.

But whether the received principle and undeniable action of the Moon may not be still retained, although in some difference of application, is yet to be perpended; that is, not by a simple operation upon the surface or superiour parts, but excitation of the nitro-sulphureous spirits, and parts disposed to intumescency at the bottom; not by attenuation of the upper part of the sea, (whereby ships would draw more water at the flow then at the ebbe) but inturgescencies caused first at the bottome, and carrying the upper part before them: subsiding and falling again, according to the motion of the Moon from the Meridian, and languor of the exciting cause: and therefore Rivers and Lakes who want these fermenting parts at the bottome, are not excited unto astuations: and therefore some Seas flow higher then others, according to the Plenty of these spirits, in the submarine constitutions; And therefore also the periods of flux and reflux are various, nor their encrease and decrease equal: according to the temper of the terreous parts at the bottome; who as they are more hardly or easily moved, do variously begin, continue or end their intumescencies.

From the peculiar disposition of the earth at the bottome, wherein quick excitations are made, may arise those Agars and impetuous flows in some astuaries and Rivers, as is observable about Trent and Humber in England, which may also have some effect in the boisterous tides of Euripus, not only from ebullitions at the bottome, but also from the sides and laterall parts, driving the streams from either side, which arise or fall according to the motion in those parts, and the intent or remisse operation of the first exciting causes, which maintain their activities above and below the Horizon: even as they do in the bodies of plants and animals, and in the commotion of Catarrhes.

However therefore Aristotle died, what was his end, or upon what occasion, although it be not altogether assured; yet that his memory and worthy name shall live, no man will deny, nor gratefull scholar doubt: and if according

*Reg. Bac. do
Hiss. Cabeus
Mer. 2.*

How the Moon
may cause the eb-
bing and flowing
of Sea.

Why Rivers and
Lakes ebbe and
flow not.
Why some Seas
flow higher then
others,
and continue
longer.

Whence the vio-
lent flows proceed
in some Astuaries
and Rivers.

ding to the Elogie of Solon, a man may be only said to be happy after he is dead, and ceaseth to be in the visible capacity of beatitude: or if according unto his own Ethicks, sense is not essentiall unto felicity, but a man may be happy without the apprehension thereof; surely in that sense he is pyramidally happy; nor can he ever perish but in the Euripe of Ignorance, or till the Torrent of Barbarism overwhelm all.

A like conceit there passeth of Melisigenes, *alias* Homer, the father Poet, that he pined away upon the Riddle of the fishermen. But Herodotus who wrote his life hath cleared this point; delivering that passing from Samos unto Athens, he went sick ashore upon the Island Jos, where he died, and was solemnly interred upon the Sea side; and so decidingly concludeth, *Ex hoc agnitudine extremum diem clausit Homerus in Jo, non, ut arbitrantur aliqui, Anigmatibus perplexitate enectus, sed morbo.*

Homers death

CHAP. XIV.

Of the Wish of Philoxenus.

THat relation of Aristotle and conceit generally received concerning Philoxenus, who wished the neck of a Crane, that thereby he might take more pleasure in his meat, although it passe without exception, upon enquiry I finde not only doubtfull in the story, but absurd in the desire or reason alledged for it. For though his Wish were such as is delivered, yet had it not perhaps that end, to delight his gust in eating; but rather to obtain advantage thereby in singing, as is declared by Mirandula. Aristotle (saith he) in his Ethicks and Problems, accuseth Philoxenus of sensuality, for the greater pleasure of gust desiring the neck of a Crane; which desire of his, assenting unto Aristotle, I have formerly condemned; But since I perceive that Aristotle for this accusation hath been accused by divers Writers. For Philoxenus was an excellent Musician, and desired the neck of a Crane, not for any pleasure at meat; but fancying thereby an advantage in singing or warbling, and dividing the notes in musick. And indeed, many Writers there are which mention a Musician of that name, as Plutarch in his book against Usury, and Aristotle himself in the eighth of his Politicks, speaks of one Philoxenus a Musician, that went off from the Dorick Dytherambicks unto the Phrygian Harmony.

Again, Be the story true or false, rightly applied or not, the intention is not reasonable, and that perhaps neither one way nor the other. For, if we rightly consider the organ of taste, we shall finde the length of the neck to conduce but little unto it. For the tongue being the instrument of taste, and the tip thereof the most exact distinguisher, it will not advantage the gust to have the neck extended; wherein the Gullet and conveying parts are only seated, which partake not of the nerves of gustation or appertaining unto sapor, but receive them only from the sixth pair; whereas the nerves of taste descend from the third and fourth propagations, and so diffuse themselves into the tongue. And therefore Cranes, Herons and Swans, have no advantage in taste beyond Hawks, Kites, and others of shorter necks.

Nor, if we consider it, had Nature respect unto the taste in the different contrivance of necks, but rather unto the parts contained, the composure of the rest of the body, and the manner whereby they feed. Thus animals of

T t

long

long legs; have generally long necks; that is, for the conveniency of feeding, as having a necessity to apply their mouths unto the earth. So have Horses, Camels, Dromedaries long necks, and all tall animals, except the Elephant, who in defect thereof is furnished with a Trunk, without which he could not attain the ground. So have Cranes, Herons, Storks and Shovelards long necks; and so even in Man whose figure is erect, the length of the neck followeth the proportion of other parts; and such as have round faces, or broad chests and shoulders, have seldome or never long necks. For, the length of the face twice exceedeth that of the neck, and the space betwixt the throat pit and the navell is equall unto the circumference thereof. Again, animals are framed with long necks, according unto the course of their life or feeding: so many with short legges have long necks, because they feed in the water, as Swans, Geese, Pelicans, and other fin-footed animals. But Hawks and birds of prey have short necks and trussed legges; for that which is long is weak and flexible, and a shorter figure is best accommodated unto that intention. Lastly, the necks of animals do vary, according to the parts that are contained in them, which are the weazon and the gullet. Such as have no weazon and breathe not, have scarce any neck, as most sorts of fishes; and some none at all, as all sorts of pectinals, Soales, Thornback, Flounders; and all crustaceous animals, as Crevises, Crabs and Lobsters.

finia gustu
All which considered, the Wish of Philoxenus will hardly consist with reason. More excusable had it been to have wished himself an Ape, which if common conceit speak true, is exacter in taste than any. Rather some kinde of granivorous bird than a Crane, for in this sense they are so exquisite, that upon the first peck of their bill, they can distinguish the qualities of hard bodies; which the sense of man discerns not without mastication. Rather some ruminating animall, that he might have eat his meat twice over; or rather, as Theophilus observed in Athenaus, his desire had been more reasonable, had he wished himself an Elephant, or an Horse; for in these animals the appetite is more vehement, and they receive their viands in large and plenteous manner. And this indeed had been more sutable, if this were the same Philoxenus whereof Plutarch speaketh; who was so uncivilly greedy, that to engrosse the messe, he would preventively deliver his nostrils in the dish.

145.
p. 17.
As for the muscicall advantage, although it seem more reasonable, yet do we not observe that Cranes and birds of long necks have any muscicall, but harsh and clangous throats. But birds that are canorous and whose notes we most commend, are of little throats and short necks, as Nightingales, Finches, Linnets, Canary birds and Larks. And truly, although the weazon, throtle and tongue be the instruments of voice, and by their agitations do chiefly concurre unto these delightfull modulations, yet cannot we assign the cause unto any particular formation; and I perceive the best thereof, the Nightingale, hath some disadvantage in the tongue; which is not acuminate and pointed as in the rest, but seemeth as it were cut off; which perhaps might give the hint unto the fable of Philomela, and the cutting off her tongue by Tereus.

CHAP. XV.

of the Lake Asphaltites.

Concerning the Lake Asphaltites, the Lake of Sodome, or the dead Sea, that heavy bodies cast therein sink not, but by reason of a salt and bituminous thicknesse in the water float and swimme above, narrations already made are of that variety, we can hardly from thence deduce a satisfactory determination; and that not only in the story it self, but in the cause alledged. As for the story, men deliver it variously; some I fear too largely, as Pliny, who affirmeth that bricks will swimme therein. Mandevill goeth farther, that Iron swimmeth, and feathers sink. Munster in his Cosmography hath another relation, although perhaps derived from the Poem of Tertulian, that a candle burning swimmeth, but if extinguished sinketh. Some more moderately, as Josephus, and many other; affirming only that living bodies float, nor peremptorily averring they cannot sink, but that indeed they doe not easily descend. Most traditionally, as Galen, Pliny, Solinus and Strabo, who seems to mistake the Lake Serbonis for it. Few experimentally, most contenting themselves in the experiment of Vespasian, by whose command some captives bound were cast therein and found to float as though they could have swummed: divers contradictorily, or contrarily, quite overthrowing the point. Aristotle in the second of his Meteors speaks lightly thereof, *ὡς περ μὲν ἀλκυονίδος*, and esteemeth thereof as a fable. Biddulphus divideth the common accounts of Judea into three parts, the one saith he are apparent truths, the second apparent falsehoods, the third are dubious or between both; in which forme he ranketh the relation of this Lake. But Andrew Thevet in his Cosmography doth ocularly overthrow it; for he affirmeth, he saw an Asse with his saddle cast therein and drowned. Now of these relations so different or contrary unto each other, the second is most moderate, and safest to be embraced, which saith, that living bodies swim therein, that is, they doe not easily sink: and this, untill exact experiment further determine, may be allowed, as best consistent with this quality, and the reasons alledged for it.

As for the cause of this effect, common opinion conceives it to be the salt and bituminous thicknesse of the water. This indeed is probable, and may be admitted as farre as the second opinion concedeth. For, certain it is that salt water will support a greater burden then fresh; and we see an egge will descend in salt water, which will swimme in brine. But that Iron should float therein, from this cause is hardly granted; for heavy bodies will only swimme in that liquor, wherein the weight of their bulk exceedeth not the weight of so much water as it occupieth or taketh up. But surely no water is heavy enough to answer the ponderosity of Iron; and therefore that metall will sink in any kinde thereof, and it was a perfect miracle which was wrought this way by Elisha. Thus we perceive that bodies doe swim or sink in different liquors, according unto the tenuity or gravity of those liquors which are to support them. So salt water beareth that weight which will sink in vinegar, vinegar that which will fall in fresh water, fresh water that which will sink in spirits of Wine, and that will swimme in spirits of Wine which will sink in cleer oyle; as we made experiment in globes of wax pierced with light sticks to support them. So that although it be conceived an hard matter to sink in oyle, I beleieve a man should finde it very difficult, and next to

V. Tu doctus
licet.

Biddulphi itine-
rarium Anglica

39.

flying to swimme therein. And thus will Gold swimme in Quicksilver, wherein Iron and other metals sink; for the bulk of Gold is only heavier then that space of Quicksilver which it containeth; and thus also in a solution of one ounce of Quicksilver in two of *Aqua fortis*, the liquor will bear Amber, horn, and the softer kindes of stones, as we have made triall in each.

But a private opinion there is which crosseth the common conceit, maintained by some of late, and alledged of old by Strabo; that the floating of bodies in this Lake proceeds not from the thicknesse of the water, but a bituminous ebullition from the bottome, whereby it wafts up bodies injected, and suffereth them not easily to sink. The verity thereof would be enquired by ocular exploration, for this way is also probable. So we observe, it is hard to wade deep in baths where springs arise; and thus sometime are bals made to play upon a spouting stream.

And therefore, untill judicious and ocular experiment confirm or distinguish the assertion, that bodies doe not sink herein at all we doe not yet beleeve; that they not easily, or with more difficulty descend in this then other water, we shall readily assent. But to conclude an impossibility from a difficulty, or affirm whereas things not easily sink, they doe not drown at all; beside the fallacy, is a frequent addition in humane expression, and an amplification not unusuall as well in opinions as relations; which oftentimes give indistinct accounts of proximities, and without restraint transcend from one unto another. Thus, forasmuch as the torrid Zone was conceived exceeding hot, and of difficult habitation, the opinions of men so advanced its constitution, as to conceive the same uninhabitable, and beyond possibility for man to live therein. Thus, because there are no Wolves in England, nor have been observed for divers generations, common people have proceeded into opinions, and some wise men into affirmations, they will not live therein although brought from other Countries. Thus most men affirm, and few here will beleieve the contrary, that there be no Spiders in Ireland; but we have beheld some in that Countrey; and though but few, some cobwebs we behold in Irish wood in England. Thus the Crocodile from an egge growing up to an exceeding magnitude, common conceit, and divers Writers deliver, it hath no period of encrease, but groweth as long as it liveth. And thus in brief, in most apprehensions the conceits of men extend the considerations of things, and dilate their notions beyond the propriety of their natures.

CHAP. XVI.

of divers other relations.

1. **T**He relation of *Averroes* and now common in every mouth, of the woman that conceived in a bath, by attracting the sperme or feminall effluxion of a man admitted to bath in some vicinity unto her, I have scarce faith to beleeve; and had I been of the Jury, should have hardly thought I had found the father in the person that stood by her. 'Tis a new and unseconded way in History to fornicate at a distance; and much offendeth the rules of Physick, which say, there is no generation without a joynt emission, nor only a virtuall, but corporall and carnall contaction. And although Aristotle and his adherents doe cut off the one, who conceive

no

99.
See *Playling*
Geog. & Astron.
in *folio. lib. 1.*
261.

149.

See *ebiam* at
Albertus de
Gen. Embry.
cap. primo.

no effectuall ejaculation in women, yet in defence of the other they cannot be introduced: For, if as he delivereth, the inordinate longitude of the organ, though in its proper recipient, may be a means to improplicate the seed; surely the distance of place, with the commixture of an aqueous body, must prove an effectuall impediment, and utterly prevent the success of a conception. And therefore that conceit concerning the daughters of Lot, that they were impregnated by their sleeping father, or conceived by seminall pollution received at distance from him, will hardly be admitted. And therefore what is related of devils, and the contrived delusions of spirits, that they steale the seminall emissions of man, and transmit them into their votaries in coition, is much to be suspected; and altogether to be denied, that there ensue conceptions thereupon, however husbanded by Art, and the wisest menagery of that most subtil impostor. And therefore also that our magnified Merlin was thus begotten by the devil, is a groundlesse conception; and as vain to think from thence to give the reason of his prophetically spirit. For if a generation could succeed, yet should not the issue inherit the faculties of the devil; who is but an auxiliary and no univocall Actor; Nor will his nature substantially concur to such productions.

2. The relation of Lucilius, and now become common, concerning Crassus the grandfather of Marcus the wealthy Roman, that he never laughed but once in all his life, and that was at an Ass eating Thistles, is something strange. For, if an indifferent and unridiculous object could draw his habituall austerenness unto a smile; it will be hard to beleieve he could with perpetuity resist the proper motives thereof. For the act of laughter which is a sweet contraction of the muscles of the face, and a pleasant agitation of the vocall organs, is not meerly voluntary; or totally within the jurisdiction of our selves: but as it may be constrained by corporall contact in any, and hath been enforced in some even in their death; so the new unusuall or unexpected jucundities, which present themselves to any man in his life; at some time or other will have activity enough to excitate the earthiest soul, and raise a smile from most composed tempers. Certainly the times were dull when these things happened, and the wits of those Ages short of these of ours, when men could maintain such immutable faces, as to remain like statues under the flatteries of wit, and persist unalterable at all efforts of Jocularity. The spirits in hell, and Pluto himself, whom Lucian makes to laugh at passages upon earth, will plainly condemn these Saturnines; and make ridiculous the magnified Heraclitus, who wept preposterously, and made a hell on earth; for rejecting the consolations of life, he passed his daies in tears, and the uncomfortable attendments of hell.

3. The same conceit there passeth concerning our blessed Saviour, and is sometimes urged as an high example of gravity. And this is opinioned, because in holy Scripture it is recorded he sometimes wept, but never that he laughed. Which howsoever granted, it will be hard to conceive how he passed his younger years and childehood without a smile; if as Divinity affirmeth, for the assurance of his humanity unto men, and the concealment of his Divinity from the devil, he passed this age like other children, and so proceeded untill he evidenced the same. And surely no danger there is to affirm the act or performance of that, whereof we acknowledge the power and essentiall property; and whereby indeed he most needly convinced the doubt of his humanity. Nor need we be afraid to ascribe that unto the incarnate Sonne, which sometimes is attributed unto the

Generations by
the devil very im-
probable.

See his Religio Medici
pag. 65.

And. Scher. Ber.
Top. in. cap.
3. de laus. eff.
num. 168.
et in cap. mat.
num. 23.

Laughter, what
kinde of passion
it is.

*Zelus domus
tue comedit me.*

Only in the
vulgar Latine
Judg. 9 53.

uncarnate Father; of whom it is said, He that dwelleth in the heavens shall laugh the wicked to scorn. For, a laugh there is of contempt or indignation, as well as of mirth and Jocosity; And that our Saviour was not exempted from the ground hereof, that is, the passion of anger, regulated and rightly ordered by reason, the Schools doe not deny: and besides the experience of the money-changers, and Dove-sellers in the Temple, is testified by St John when he saith, the speech of David was fulfilled in our Saviour.

Now the Alogie of this opinion consisteth in the illation; it being not reasonable to conclude from Scripture negatively in points which are not matters of faith, and pertaining unto salvation. And therefore although in the description of the creation there be no mention of fire, Christian Philosophy did not think it reasonable presently to annihilate that Element, or positively to decree there was no such thing at all. Thus whereas in the brief narration of Moses there is no record of wine before the flood, can we satisfactorily conclude that Noah was the first that ever tasted thereof? And thus because the word Brain is scarce mentioned once, but Heart above an hundred times in holy Scripture; will Physitians that dispute the principality of parts be induced from hence to bereave the animall organ of its priority? Wherefore the Scriptures being serious, and commonly omitting such Parergies, it will be unreasonable from hence to condemn all laughter, and from considerations inconsiderable to discipline a man out of his nature. For this is by a rusticall severity to banish all urbanity; whose harmlesse and confined condition as it stands commended by morality; so is it consistent with Religion, and doth not offend Divinity.

4. The custome it is of Popes to change their name at their creation; and the Author thereof is commonly said to be *Bocca di Porco*, or Swines face, who therefore assumed the stile of Sergius the second, as being ashamed so foule a name should dishonour the chair of Peter; wherein notwithstanding, from Montacutius and others I finde there may be some mistake. For Massonius who writ the lives of Popes, acknowledgeth he was not the first that changed his name in that Sea; nor as Platina affirmeth, have all his successors precisely continued that custome; for Adrian the sixt, and Marcellus the second, did still retain their Baptismall denominations. Nor is it proved, or probable that Sergius changed the name of *Bocca di Porco*, for this was his surname or gentilitious appellation; nor was it the custome to alter that with the other; but he commuted his Christian name Peter for Sergius, because he would seem to decline the name of Peter the second. A scruple I confesse not thought considerable in other Seas, whose originalls and first Patriarchs have been lesse disputed; nor yet perhaps of that reality as to prevaile in points of the same nature. For the names of the Apostles, Patriarchs and Prophets have been assumed even to affectation; the name of Jesus hath not been appropriate, but some in precedent ages have borne that name, and many since have not refused the Christian name of Emanuel. Thus are there few names more frequent then Moses and Abraham among the Jewes; The Turkes without scruple affect the name of Mahomet, and with gladnesse receive so honourable cognomination.

And truly in humane occurrences there ever have been many well directed intentions, whose rationalities will never bear a rigid examination; and though in some way they doe commend their Authors and such as first began them, yet have they proved insufficient to perpetuate imitation in such as have succeeded them. Thus was it a worthy resolution of Godfrey, and most Christians

ffians have applauded it, That he refused to wear a Crown of gold where his Saviour had worn one of thornes. Yet did not his Successors durably inherit that scruple, but some were anointed, and solemnly accepted the Diademe of Regality. Thus Julius, Augustus and Tiberius with great humility or popularity refused the name of *Imperator*; but their Successors have challenged that title, and retain the same even in its titularity. And thus, to come neerer our subject, the humility of Gregory the Great, would by no means admit the stile of Universall Bishop; but the ambition of Boniface made no scruple thereof; nor of more queasie resolutions have been their Successors ever since.

5. That Tamerlane was a Scythian Shepherd, from M. Knolls and others, from Alhazen a learned Arabian who wrote his life, and was spectator of many of his exploits, we have reasons to deny. Not only for his birth, for he was of the blood of the Tartarian Emperours, whose father Og had for his possession the Countrey of Sagathy; which was no slender Territory, but comprehended all that tract wherein were contained Bactriana, Sogdiana, Margiana, and the Nation of the Massagetes; whose Capitall City was Samarcand; a place though now decayed, of great esteem and trade in former ages. But from his Regall Inauguration, for it is said, that being about the age of fifteen, his old father resigned the Kingdome, and men of warre unto him. And also from his education; for as the story speaks it, he was instructed in the Arabian learning, and afterward exercised himself therein. Now Arabian learning was in a manner all the liberall Sciences, especially the Mathematicks, and naturall Philosophy; wherein not many ages before him, there flourished Avicenna, Averrhoes, Avenzoar, Geber, Almanzor and Alhazen, cognominall unto him that wrote his history; whose Chronology indeed, although it be obscure, yet in the opinion of his Commentator, he was contemporary unto Avicenna, and hath left sixteen books of Opticks, of great esteem with ages past, and textuary unto our daies.

Turkish History.

Now the ground of this mistake was surely that which the Turkish historian declareth. Some, saith he, of our historians will needs have Tamerlane to be son of a Shepherd. But this they have said, not knowing at all the custome of their Countrey; wherein the principall revenews of the King and Nobles consisteth in cattell; who despising gold and silver, abound in all sorts thereof. And this was the occasion that some men call them Shepherds, and also affirm this Prince descended from them. Now, if it be reasonable, that great men whose possessions are chiefly in cattell, should bear the name of Shepherds, and fall upon so low denominations; then may we say that Abraham was a Shepherd, although too powerfull for four Kings; that Job was of that condition, who beside Camels and Oxen had seven thousand Sheep; and yet is said to be the greatest man in the East. Thus was Mesha King of Moab a Shepherd, who annually paid unto the Crown of Israel, an hundred thousand lambs and as many Rams. Surely it is no dishonourable course of life which Moses and Jacob have made exemplary; 'tis a profession supported upon the naturall way of acquisition, and though contemned by the Egyptians, much countenanced by the Hebrews, whose sacrifices required plenty of Sheep and Lambs. And certainly they were very numerous; for, at the consecration of the Temple, beside two and twenty thousand Oxen, King Solomon sacrificed an hundred and twenty thousand Sheep; and the same is observable from the daily provision of his house; which was ten fat Oxen, twenty Oxen out of the pastures, and an hundred Sheep, beside row Buck, fallow Deer, and fatted Fowls. Wherein notwithstanding (if a punctuall relation thereof do rightly inform us) the grand Seignior doth exceed;

The daily provi-
sion of the Serag-
lio.

ceed ; the daily provision of whose Seraglio in the reign of Achmet, beside Beeves, consumed two hundred Sheep, Lambs and Kids when they were in season one hundred, Calves ten, Geese fifty, Hens two hundred, Chickens one hundred, Pigeons an hundred pair.

And therefore this mistake concerning the noble Tamerlane, was like that concerning Demosthenes, who is said to be the sonne of a Black-smith, according to common conceit and that handsome expression of Juvenal,

*Quem pater ardentis massæ fuligine lippus,
A carbone & forcipibus, gladiisq; parante
Incude, & luteo Vulcano ad Rhetora misit.*

But Plutarch who writ his life hath cleared this conceit, plainly affirming he was most nobly descended, and that this report was raised, because his father had many slaves that wrought Smiths work, and brought the profit unto him.

CHAP. XVII.

Of some others.

1. **W**E are sad when we read the story of Belisarius that worthy Chief-tain of Justinian ; who, after the Victories of Vandals, Goths and Persians, and his Trophies in three parts of the World, had at last his eyes put out by the Emperour, and was reduced to that distresse, that he beg'd relief on the high way, in that uncomfortable petition, *Date obolum Belisario*. And this we do not only hear in discourses, Orations and Themes, but finde it also in the leaves of *Petrus Crinitus*, *Volaterranus* and other worthy Writers.

But, what may somewhat console all men that honour vertue, we do not discover the latter Scene of his misery in Authours of Antiquity, or such as have expressly delivered the story of those times. For, Suidas is silent herein, Cedrenus and Zonarus, two grave and punctuall Authours, delivering only the confiscation of his goods, omit the history of his mendication. *Paulus Diaconus* goeth farther, not only passing over this act, but affirming his goods and dignities were restored. Agathius who lived at the same time, declareth he suffered much from the envie of the Court : but that he descended thus deep into affliction, is not to be gathered from his pen. The same is also omitted by *Procopius* a contemporary and professed enemy unto Justinian and Belisarius, who hath left an opprobrious book against them both.

And in this opinion and hopes we are not single ; but Andreas Alciatus the Civilian in his *Parerga*, and *Franciscus de Cordua* in his *Didascalica*, have both declaratorily confirmed the same, which is also agreeable unto the judgement of *Nicolaus Alemannus*, in his notes upon that bitter history of *Procopius*. Certainly sad and Tragicall stories are seldome drawn within the circle of their verities ; but as their Relators do either intend the hatred or pity of the persons, so are they set forth with additionall amplifications. Thus have some suspected it hath happened unto the story of *Oedipus* ; and thus do we conceive it hath fared with that of *Judas* ; who having sinned beyond aggravation, and committed one villany which cannot be exasperated by all other ; is yet charged with the murder of his reputed brother, parricide of his father, and Incest with his own mother ; as *Florilegus* or *Matthew of Westminster* hath at large related. And thus hath it perhaps befallen the noble

Belisarius,

Ἀνεκδοτα or
Arcana historia

Ind. 304. 9.

Belisarius, who, upon instigation of the Empreſſe, having contrived the exile, and very hardly treated Pope Serverius, Latine pens, as a judgement of God upon this fact, have set forth his future sufferings: and omitting nothing of amplification, they have also delivered this; which notwithstanding Johannes the Greek, makes doubtfull, as may appear from his Iambicks in Baronius, and might be a mistake or misapplication, translating the affliction of one man upon another, for the same befell unto Johannes Cappadox, contemporary unto Belisarius, and in great favour with Justinian; who being afterward banished into Ægypt, was fain to beg relief on the high way.

2. That *fluctus Decumanus*, or the tenth wave is greater and more dangerous than any other, some no doubt will be offended if we deny; and hereby we shall seem to contradict Antiquity; for, answerable unto the literall and common acceptation the same is averred by many Writers, and plainly described by Ovid,

*Qui venit hic fluctus, fluctus supereminet omnes,
Posterior nono est, undecimog; prior.*

Which notwithstanding is evidently false; nor can it be made out by observation either upon the shoar or the Ocean, as we have with diligence explored in both. And surely in vain we expect a regularity in the waves of the Sea, or in the particular motions thereof, as we may in its generall reciprocations, whose causes are constant, and effects therefore correspondent. Whereas its fluctuations are but motions subservient; which windes, storms, shoars, shelves, and every interjacency irregulates. With semblable reason we might expect a regularity in the windes; whereof though some be statary, some anniversary, and the rest do tend to determinate points of heaven; yet do the blasts and undulary breaths thereof maintain no certainty in their course; nor are they numerally feared by Navigators.

Of affinity hereto is that conceit of *Ovum decumanum*, so called, because the tenth egge is bigger than any other, according unto the reason alledged by Festus, *Decumana ova dicuntur, quia ovum decimum majus nascitur*. For the honour we bear unto the Clergy, we cannot but wish this true; but herein will be found no more of verity then in the other: and surely few will assent hereto without an implicate credulity, or Pythagoricall submission unto every conception of number.

For, surely the conceit is numerall, and though not in the sense apprehended, relateth unto the number of ten, as Franciscus Sylvius hath most probably declared. For, whereas amongst simple numbers or Digits, the number of ten is the greatest: therefore whatsoever was the greatest in every kinde, might in some sense be named from this number. Now, because also that which was the greatest, was metaphorically by some at first called *Decumanus*; therefore whatsoever passed under this name was literally conceived by others to respect and make good this number.

The conceit is also Latine; for the Greeks to expresse the greatest wave, do use the number of three, that is, the word *τεκνυρία*, which is a concurrence of three waves in one, whence arose the proverb, *τεκνυρία ἔργων*, or a trifluatation of evils, which Erasmus doth render, *Malorum fluctus Decumanus*. And thus, although the terms be very different, yet are they made to signifie the self same thing; the number of ten to explain the number of three, and the single number of one wave the collective concurrence of more.

3. The poyson of Parysatis reported from Ctesias by Plutarch in the life of Artaxerxes, whereby anointing a knife on the one side, and therewith di-

Procop. bell.
Περβ. 1.
"Αρτον ἢ ὀβολόν
ἀπαιθεῖν.

108.	viding a bird; with the one half she poysoned Statira, and safely fed her self on the other, was certainly a very subtile one, and such as our ignorance is well content it knows not. But surely we had discovered a poyson that would
329.	not endure Pandoraes box, could we be satisfied in that which for its coldnesse nothing could contain but an Asses hoof, and wherewith some report that Alexander the great was poysoned. Had men derived so strange an effect from some occult or hidden qualities, they might have silenced contradiction; but ascribing it unto the manifest and open qualities of cold, they must pardon our belief; who perceive the coldest and most Stygian waters may be included in glasses; and by Aristotle, who saith, that glasse is the perfectest work of Art, we understand they were not then to be invented.
In what sense God Almighty hath created all things double.	<p>And though it be said that poyson will break a Venice glasse, yet have we not met with any of that nature. Were there a truth herein, it were the best preservative for Princes, and persons exalted unto such fears: and surely farre better then divers now in use. And though the best of China dishes, and such as the Emperour doth use, be thought by some of infallible vertue unto this effect; yet will they not, I fear, be able to elude the mischief of such intentions. And though also it be true, that God made all things double, and that if we look upon the works of the most High, there are two and two, one against another; that one contrary hath another, and poyson is not without a poyson unto its self; yet hath the curse so farre prevailed, or else our industry defected, that poysons are better known then their Antidotes, and some thereof do scarce admit of any. And lastly, although unto every poyson men have delivered many Antidotes, and in every one is promised an equality unto its adversary, yet do we often finde they fail in their effects: Moly will not resist a weaker cup then that of Circe; a man may be poysoned in a Lemnian dish; without the miracle of John, there is no confidence in the earth of Paul; and if it be meant that no poyson could work upon him, we doubt the story, and expect no such successe from the diet of Mithridates.</p> <p>A story there passeth of an Indian King, that sent unto Alexander a fair women fed with Aconites and other poysons, with this intent, either by converse or copulation complexionally to destroy him. For my part, although the design were true, I should have doubted the successe. For, though it be possible that poysons may meet with tempers whereto they may become Aliments, and we observe from fowls that feed on fishes, and others fed with garlick and onyons, that simple aliments are not alwaies concocted beyond their vegetable qualities; and therefore that even after carnall conversion, poysons may yet retain some portion of their natures; yet are they so refracted, cicurated and subdued, as not to make good their first and destructive malignities. And therefore the Stork that eateth Snakes, and the Stare that feedeth upon Hemlock, though no commendable aliments, are not destructive poysons. For, animals that can innoxiously digest these poysons become antidotall unto the poyson digested. And therefore whether their breath be attracted, or their flesh ingested, the poysonous reliques go still along with their Antidote; whose society will not permit their malice to be destructive. And therefore also animals that are not mischieved by poysons which destroy us, may be drawn into Antidote against them; The bloud or flesh of Storks against the venome of Serpents, the Quail against Hellebore, and the diet of Starlings against the drought of Socrates. Upon like grounds are some parts of Animals Alexipharmacall unto others; and some veins of the earth, and also whole regions, not only destroy the life of venomous creatures,</p>
Terra Melitea.	
144.	
Hemlock.	
as J. J. Land. 282	

tures, but also prevent their productions. For, though perhaps they contain the feminals of Spiders and Scorpions, and such as in other earths by fuscitation of the Sunne may arise unto animation; yet lying under command of their Antidote; without hope of emergency they are poysoned in their matrix by those powers, that easily hinder the advance of their originals, whose confirmed forms they are able to destroy.

5. The story of the wandering Jew is very strange, and will hardly obtain belief; yet is there a formall account thereof set down by Matthew Paris, from the report of an Armenian Bishop; who came into this kingdome about four hundred years ago, and had often entertained this wanderer at his Table. That he was then alive, was first called Cartaphilus, was keeper of the Judgement Hall, whence thrusting out our Saviour with expostulation for his stay, was condemned to stay untill his return; was after baptized by Ananias, and by the name of Joseph; was thirty years old in the daies of our Saviour, remembred the Saints that arised with him, the making of the Apostles Creed, and their severall perigrinations. Surely were this true, he might be an happy arbitrator in many Christian controversies; but must impardonably condemn the obstinacy of the Jews, who can condemn the Rhetorick of such miracles, and blindly behold so living and lasting conversions.

6. Clearer confirmations must be drawn for the history of Pope Joane, who succeeded Leo the fourth, and preceded Benedict the third, then any we yet discover. And since it is delivered with *aiunt* and *ferunt* by many; since the learned Leo Allatius hath discovered, that ancient copies of Martinus Polonus, who is chiefly urged for it, had not this story in it; since not only the stream of Latine Historians have omitted it, but Photius the Patriarch, Metrophanes Smyrnaus, and the exasperated Greeks have made no mention of it, but conceded Benedict the third Successor unto Leo the fourth; he wants not grounds that doubts it.

Many things historicall which seem of clear concession, want not affirmations and negations, according to divided pens: as is notoriously observable in the story of Hildebrand or Gregory the seventh, repugnantly delivered, by the Imperiall and Papall party. In such divided records partiality hath much depraved history; wherein if the equity of the reader doe not correct the iniquity of the writer, he will be much confounded with repugnancies, and often finde in the same person, Numa and Nero. In things of this nature moderation must intercede; and so charity may hope, that most doe reade many passages in Boleseh, Fayus, Schlusfelberg and Cochlaus.

7. Every ear is filled with the story of Frier Bacon, that made a brazen head to speak these words, *Time is*. Which, though there want not the like relations, is surely too literally received, and was but a mysticall fable concerning the Philosophers great work, wherein he eminently laboured. Implying no more by the copper head, then the vessell wherein it was wrought; and by the words it spake, then the opportunity to be watched, about the *Tempus ortus*, or birth of the mysticall childe, or Philosophicall King of Lullius: The rising of the *Terra foliata* of Arnoldus, when the earth sufficiently impregnated with the water, ascendeth white and splendent. Which not observed, the work is irrecoverably lost; according to that of Petrus Bonus. *Ibi est operis perfectio aut annihilatio; quoniam ipsa die, immò hora, oriuntur elementa simplicia depurata, quæ egent statim compositione, antequam volent ab igne.*

Now letting slip this criticall opportunity, he missed the intended treasure. Which he had obtained, he might have made out the tradition of making a brazen wall about England. That is the most powerfull defence, and strongest fortification,

Vade quid moraris? Ego vado, tu autem morare donec venias.

Confutatio fabulæ de Ioanna Papissa. Cum Nibulso.

Of Luther, Calvin, Beza.

Rog. Bacon minorita, Oxoniensis vir doctissimus.

Margarita pretiosa.

fortification, which gold could have effected.

8. Who can but pity the vertuous Epicurus, who is commonly conceived to have placed his chief felicity in pleasure and sensuall delights, and hath therefore left an infamous name behinde him? How true, let them determine who reade that he lived seventy years, and wrote more books then any Philosopher but Chrysippus, and no lesse then three hundred, without borrowing from any Author. That he was contented with bread and water, and when he would dine with Jove, and pretend unto epulation, he desired no other addition then a piece of Cytheridian cheefe. That shall consider the words of Seneca, *Non dico, quod pleriq; nostrorum, sectam Epicuri flagitiorum magistrum esse: sed illud dico, male audit, infamis est, & immerito.* Or shall reade his life, his Epistles, his Testament in Laertius; who plainly names them calumnies, which are commonly said against them.

The ground hereof seems a misapprehension of his opinion, who placed his felicity not in the pleasures of the body, but the minde, and tranquillity thereof, obtained by wisdom and vertue, as is most clearly determined in his Epistle unto Menæceus. Now how this opinion was first traduced by the Stoicks, how it afterwards became a common belief, and so taken up by Authors of all ages, by Cicero, Plutarch, Clemens, Ambrose and others; the learned pen of Gassendus hath discovered.

*De vita &
moribus Epi-
curi.*

CHAP. XVIII.

More briefly of some others.

Other relations there are, and those in very good Authors; which though we doe not positively deny, yet have they not been unquestioned by some, and at least as improbable truths have been received by others. Unto some it hath seemed Incredible what Herodotus reporteth of the great Army of Xerxes, that drank whole Rivers dry. And unto the Author himself it appeared wondrous strange, that they exhausted not the provision of the Countrey, rather then the waters thereof. For as he maketh the account, and Budeus *de Assè* correcting the miscompute of Valla, delivereth it; if every man of the Army had had a chenix of Cornea day, that is a sextary and half, or about two pints and a quarter, the Army had daily expended ten hundred thousand and fourty medimna's, or measures containing six Bushels. Which rightly considered, the Abderites had reason to blesse the heavens, that Xerxes eat but one meale a day; and Pythius his noble host, might with lesse charge and possible provision entertain both him and his Army. And yet may all be salved, if we take it hyperbolically, as wise men receive that expression in Job, concerning Behemoth or the Elephant; Behold, he drinketh up a River and hasteth not, he trusteth that he can draw up Jordane into his mouth.

2. That Anniball eat or brake through the Alpes with Vinegar, may be too grossely taken, and the Author of his life annexed unto Plutarch affirmeth only, he used this artifice upon the tops of some of the highest mountains. For as it is vulgarly understood, that he cut a passage for his Army through those mighty mountains, it may seem incredible, not only in the greatnesse of the effect, but the quantity of the efficient: and such as behold them, may think an Ocean of Vinegar too little for that effect. 'Twas a work indeed rather to be expected from earthquakes and inundations, then any corrosive waters,

waters, and much condemneth the judgement of Xerxes, that wrought through Mount Athos with Mattocks.

3. That Archimedes burnt the ships of Marcellus, with speculums of parabolical figures, at three furlongs, or as some will have it at the distance of three miles, sounds hard unto reason, and artificiall experience: and therefore justly questioned by Kircherus, who after long enquiry could finde but one made by Manfredus Septalius that fired at fifteen paces. And therefore more probable it is, that the ships were neerer the shoar, or about some thirty paces: at which distance notwithstanding the effect was very great. But whereas men conceive the ships were more easily set on flame, by reason of the pitch about them, it seemeth no advantage. Since burning glasses will melt pitch or make it boyle, not easily set it on fire.

4. The story of the Fabii, whereof three hundred and six marching against the Veientes, were all slain, and one childe alone to support the family remained; is surely not to be paralleld, nor easie to be conceived; except we can imagine, that of three hundred and six, but one had children below the service of warre; that the rest were all unmarried; or the wife but of one impregnated.

5. The received story of Milo, who by daily lifting a Calf, attained an ability to carry it being a Bull, is a witty conceit, and handsomely sets forth the efficacy of Assuefaction. But surely the account had been more reasonably placed upon some person not much exceeding in strength, and such a one as without the assistance of custome could never have performed that act; which some may presume that Milo without precedent artifice or any other preparative, had strength enough to perform. For, as relations declare, he was the most pancraticall man of Greece, and as Galen reporteth, and Mercurialis in his Gymnasticks representeth, he was able to persist erect upon an oyled plank, and not to be removed by the force or protrusion of three men. And if that be true which Atheneus reporteth, he was little beholding to custome for this ability. For, in the Olympick games, for the space of a furlong, he carried an Oxe of four years upon his shoulders; and the same day he carried it in his belly; for as it is there delivered he eat it up himself. Surely he had been a proper guest at Grandgousiers feast, and might have matcht his throat that eat six pilgrims for a salad.

6. It much disadvantage the Panegyrick of Synesius, and is no small disparagement unto baldnesse, if it be true what is related by Ælian concerning Æschilus, whose balde pate was mistaken for a rock, and so was brained by a Tortoise which an Eagle let fall upon it. Certainly it was a very great mistake in the perspicacity of that Animall, and some men critically disposed, would from hence confute the opinion of Copernicus; never conceiving how the motion of the earth below, should not wave him from a knock perpendicularly directed from a body in the ayre above.

7. It crosseth the proverb, and Rome might well be built in a day; if that were true which is traditionally related by Strabo; that the great Cities Anchiale and Tarsus, were built by Sardanapalus both in one day, according to the inscription of his monument, *Sardanapalus Anacyndaraxis filius, Anchialen & Tarsum unâ die edificavi, Tu autem hospes Ede, Lude, Bibe, &c.* which if strictly taken, that is, for the finishing thereof, and not only for the beginning; for an artificiall or naturall day, and not one of Daniels weeks, that is, seven whole years; surely their hands were very heavy that wasted thirteen years in the private house of Solomon: it may be wondred how fourty years were spent in the erection of the Temple of Jerusalem, and no lesse then an

De luce & umbra,

In Rabelais, who in his Glog. calls him man of Lucian of Francis.

Who writ in the praise of baldnesse,

248.

An argument or instance against the motion of the earth,

The Syracuse or
King Hiero's Gal-
leen of what Bulk.

A List of some hi-
storical errata's in
this & the follow-
ing Sections.

*Patience & Academon. Hor. Ep.
1. Ode. 7.*

*Farfaloni bi-
storici.*

To compell Reli-
gion somewhat
contrary to reason

hundred in that famous one of Ephesus. Certainly it was the greatest Architecture of one day, since that great one of six; an Art quite lost with our Mechanicks; a work not to be made out, but like the wals of Thebes, and such an Artificer as Amphion.

8. It had been a sight only second unto the Ark, to have beheld the great Syracuse, or mighty Ship of Hiero, described in Atheneus; and some have thought it a very large one, wherein were to be found ten stables for horses, eight Towers, besides fishponds, Gardens, Tricliniums, and many fair rooms paved with Agath, and precious stones. But nothing is impossible unto Archimedes, the learned contriver thereof; nor shall we question his removing the earth, when he findes an immoveable base to place his engine upon it.

9. The relation of Plutarch of a youth Sparta, that suffered a Fox concealed under his robe to teare out his bowels, before he would either by voice or countenance betray his theft; and the other of the Spartan Lad, that with the same resolution suffered a coal from the Altar to burn his arm; although defended by the Author that writes his life, is I perceive mistrusted by men of judgement, and the Author with an *aim*, is made to save himself. Assuredly it was a noble Nation that could afford an hint to such inventions of patience, and upon whom, if not such verities, at least such verisimilities of fortitude were placed. Were the story true, they would have made the only Disciples for Zeno and the Stoicks, and might perhaps have been perswaded to laugh in Phaleris his Bull.

10. If any man shall content his belief with the speech of Balaams Ass, without a belief of that of Mahomets Camell, or Livies Oxe: if any man make a doubt of Giges ring in Justinus, or conceives he must be a Jew that beleives the Sabbaticall river in Josephus. If any man will say he doth not apprehend how the tayl of an African weather out-weigheth the body of a good Calf, that is, an hundred pound, according unto Leo Africanus, or desires before belief, to behold such a creature as is the Ruc in *Paulus Venetus*, for my part I shall not be angry with his incredulity.

11. If any one shall receive as stretcht or fabulous accounts what is delivered of Cocles, Scavola and Curtius, the sphere of Archimedes, the story of the Amazons, the taking of the City of Babylon, not known to some therein in three daies after; that the nation was deaf which dwelt at the fall of Nilus, the laughing and weeping humour of Heraclitus and Democritus, with many more, he shall not want some reason and the authority of Lancelotti.

12. If any man doubt of the strange Antiquities delivered by historians, as of the wonderfull corps of Antaeus untombd a thousand years after his death by Sertorius. Whether there were no deceit in those fragments of the Ark so common to be seen in the daies of Berosus; whether the pillar which Josephus beheld long ago, Tertullian long after, and Bartholomeus *de Saligniac*, and Borchardus long since, be the same with that of Lots wife; whether this were the hand of Paul, or that which is commonly shewn the head of Peter, if any doubt, I shall not much dispute with their suspicions. If any man shall not beleve the Turpentine betwixt Jerusalem and Bethlem, under which the Virgin suckled our Saviour, as she passed between those Cities; or the figtree of Bethany shewed to this day, whereon Zacheus ascended to behold our Saviour; I cannot tell how to enforce his belief, nor do I think it requisite to attempt it. For, as it is no reasonable proceeding to compell a religion, or think to enforce our own belief upon another, who cannot

without the concurrence of Gods Spirit, have any indubitable evidence of things that are obtruded. So is it also in matters of common belief; whereunto neither can we indubitably assent, without the cooperation of our sense or reason, wherein consist the principles of perswasion. For, as the habit of faith in Divinity is an argument of things unseen, and a stable assent unto things inevent, upon authority of the divine Revealer; So the belief of man which depends upon humane Testimony, is but a staggering assent unto the affirmative, not without some fear of the negative. And as there is required the Word of God, or infused inclination unto the one, so must the actuall sensation of our senses, at least the non-opposition of our reasons procure our assent and acquiescence in the other. So when Eusebius an holy writer affirmeth there grew a strange and unknown plant near the statue of Christ, erected by his hemarroidall patient in the Gospel, which attaining unto the hemme of his vesture, acquired a sudden faculty to cure all diseases. Although he saith he saw the statua in his daies, hath it found in many men so much as humane belief? some believing, others opinioning, a third suspecting it might be otherwise. For indeed, in matters of belief the understanding assenting unto the relation, either for the authority of the person, or the probability of the object; although there may be a confidence of the one, yet if there be not a satisfaction in the other, there will arise suspensions; nor can we properly belevee until some argument of reason, or of our proper sense convince or determine our dubitations.

What Theologi-
call Faith is.

And thus it is also in matters of certain and experimented truth: for, if unto one that never heard thereof, a man should undertake to perswade the affections of the Loadstone, or that Jet and Amber attracteth straws and light bodies, there would be little Rhetorick in the Authority of Aristotle, Pliny, or any other. Thus, although it be true that the string of a Lute or Violl will stir upon the stroak of an unison or Diapazon in another of the same kinde; that Alcanna being green, will suddenly infect the nails and other parts with a durable red; that a candle out of a Musket will pierce through an Inch board, or an Urinall force a nayl through a plank, yet can few or none belevee thus much without a visible experiment. Which notwithstanding fals out more happily for knowledge; for these relations leaving unsatisfaction in the hearers, do stir up ingenuous dubiosities unto experiment; and by an exploration of all, prevent delusion in any.

CHAP. XIX.

Of some Relations whose truth we fear.

Lastly, As there are many Relations whereto we cannot assent, and make some doubt thereof, so are there divers others whose verities we fear, and heartily wish there were no truth therein.

1. It is an unfufferable affront unto filiall piety, and a deep discouragement unto the expectation of all aged Parents, who shall but reade the story of that barbarous Queen; who after she had beheld her royall Parents ruin, lay yet in the arms of his assassine, and carowed with him in the skull of her father. For my part, I should have doubted the operation of antimony, where such a potion would not work; 'twas an act me thinks beyond Anthropophagy; and a cup fit to be served up only at the Table of Atreus.

2. While

p. 17.

Rel. med. p. 149.

Who tied dead
and living bo-
dies together.

Long-handed.

solamen miseris socios dantes
buisse doloris.so was st william de b. p. of
york pag. 100. Godwyn
B. 1001. 587.Hujus forina
multa in histo-
ria horribili.

2. While we laugh at the story of Pygmalion, and receive as a fable that he fell in love with a statue; we cannot but fear it may be true, what is delivered by Herodotus concerning the Ægyptian Pollinctors, or such as anointed the dead; that some thereof were found in the act of carnality with them. From wits that say 'tis more then incontineney for Hylas to sport with Hecuba, and youth to flame in the frozen embraces of age, we require a name for this; wherein Petronius or Martiall cannot relieve us. The tyranny of Mezentius did never equall the vitiosity of this Incubus, that could embrace corruption, and make a Mistresse of the grave; that could not resist the dead provocations of beauty, whose quick invitements scarce excuse submission. Surely, if such depravities there be yet alive, deformity need not despair; nor will the eldest hopes be ever superannuated, since death hath spurres, and carcases have been courted.

3. I am heartily sorry, and wish it were not true, what to the dishonour of Christianity is affirmed of the Italian; who after he had inveigled his enemy to disclaim his faith for the redemption of his life, did presently poynard him, to prevent repentance, and assure his eternall death. The villany of this Christian exceeded the persecution of Heathens, whose malice was never so Longimanous as to reach the soul of their enemies; or to extend unto the exile of their Elysiums. And though the blindness of some ferities have savaged on the bodies of the dead, and been so injurious unto worms, as to disenterre the bodies of the deceased; yet had they therein no designe upon the soul; and have been so farre from the destruction of that, or desires of a perpetuall death, that for the satisfaction of their revenge they wisht them many souls, and were it in their power would have reduced them unto life again. It is a great depravity in our natures, and surely an affection that somewhat favoureth of hell, to desire the society, or comfort our selves in the fellowship of others that suffer with us; but to procure the miseries of others in those extremities, wherein we hold an hope to have no society our selves, is me thinks a strain above Lucifer, and a project beyond the primary seduction of hell.

4. I hope it is not true, and some indeed have probably denied, what is recorded of the Monke that poisoned Henry the Emperour, in a draught of the holy Eucharist. 'Twas a scandalous wound unto Christian Religion, and I hope all Pagans will forgive it, when they shall reade that a Christian was poisoned in a cup of Christ, and received his bane in a draught of his saivation. Had he beleaved Transubstantiation, he would have doubted the effect; and surely the sinne it self received an aggravation in that opinion. It much commendeth the innocency of our forefathers, and the simplicity of those times, whose Laws could never dream so high a crime as parricide: whereas this at the least may seem to outreach that fact, and to exceed the regular distinctions of murder. I will not say what sinne it was to act it; yet may it seem a kinde of martyrdome to suffer by it: For, although unknowingly, he died for Christ his sake, and lost his life in the ordained testimony of his death. Certainly, had they known it, some noble zeales would scarcely have refused it; rather adventuring their own death, then refusing the memoriall of his.

Many other accounts like these we meet sometimes in History, scandalous unto Christianity, and even unto humanity; whose not only verities, but relations honest mindes doe deprecate. For of sinnes heteroclitall, and such as want either name or president, there is oft times a sinne even in their histories. We desire no records of such enormities; sinnes should be accounted new, that so they may be esteemed monstrous. They omit of
monstrosity

monstrosity as they fall from their rarity; for, men count it veniall to erre with their forefathers, and foolishly conceive they divide a sinne in its society. The pens of men may sufficiently expatiate without these singularities of villany; For, as they encrease the hatred of vice in some, so doe they enlarge the theory of wickednesse in all. And this is one thing that may make latter Ages worse then were the former; For, the vicious examples of Ages past, poison the curiosity of these present, affording a hint of sinne unto seduceable spirits, and solliciting those unto the imitation of them, whose heads were never so perversly principled as to invent them. In this kinde we commend the wisdom and goodnesse of Galen, who would not leave unto the world too subtile a Theory of Poisons; unarming thereby the malice of venomous spirits, whose ignorance must be contented with Sublimate and Arsenick. For, surely there are subtler venenations, such as will invisibly destroy, and like the Basilisks of heaven. In things of this nature silence commendeth history; 'tis the veniable part of things lost; wherein there must never rise a Pancirollus, nor remain any Register but that of hell.

And yet, if as some Stoicks opinion, and Seneca himself disputeth, these unruly affections that make us sinne such prodigies, and even sinnes themselves be animals; there is an history of Africa and story of Snakes in these. And if the transanimation of Pythagoras or method thereof were true, that the souls of men transmigrated into species answering their former natures; some men must surely live over many Serpents, and cannot escape that very brood whose fire Satan entered. And though the objections of Plato should take place, that bodies subjected unto corruption, must fail at last before the period of all things, and growing fewer in number, must leave some souls apart unto themselves; the spirits of many long before that time will finde but naked habitations; and meeting no assimilables wherein to react their natures, must certainly anticipate such naturall desolations.

LACTANT.

Primus sapientia gradus est, falsa intelligere.

X x

An

FINIS.

149.

97.

322.

Who writ *De Antiquis deperditis*, or of inventions lost.

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